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NOTES FROM THE MINES.

HAURAKI GOLDFIELDS.

THAMES DISTRICT.

Thames-Hauraki.—This company are pushing on with the erection of their plant. Ten large Lancashire boilers are now in position, and the bricking-in is nearly finished: this will complete the number of boilers for the present. Each boiler is 30 ft. in length by 7 ft. in diameter. The working-pressure will be 120 lb. to the square inch. A crane is erected over the engine-bed capable of lifting 12 tons: it is placed on a frame which runs on rollers for the whole length of the building, so that the heavy pieces of machinery can be lifted and carried along to where they are required. There will be a delay of a couple of months owing to the steamer which was bringing out some of the machinery breaking down and having to be towed back to London for repairs. The sinking of the Deep Sinker shaft is being vigorously proceeded with; dioritic country continues to be penetrated, but it is fully expected that a change will shortly be met with. The exploring level in the Deep Level Consolidated is still passing through rock of a mixed character, the country to all appearances having been very much disturbed.

Moanataiari.—This company are pushing on with the erection of their crushing and gold-saving plant, which comprises sixty stamps, twenty-four vanners for concentrating the tailings, and a cyanide plant, which it is considered will be one of the best in the colony. The stamps are in position, and the battery-house is nearly finished. The No. 2 shaft in the old Just-in-Time section has attained a depth of 500 ft., which will enable the opening-out of No. 4 level to be proceeded with.

May Queen, Hauraki.—The main shaft has been enlarged down to within a few feet of the No. 3 level; about 100 ft. still remains to be done to reach the bottom. The Cardigan No. 2 reef is being developed, and some trial crushings have given satisfactory results, though the body of ore operated on is not a large one.

Kuranui-Caledonian.—Steady development work is going on in this company's property, and a good supply of ore is being made available.

Waiotahi.—This company maintains its reputation as a dividend-producer. The following are the yields for the past three months:—

	Tons.	Oz. dwt. gr.			Value. £	s.	d.
July ..	.. 145	195	1	0	537	4	0
August ..	.. 130	186	11	0	509	18	0
September	.. 140	186	9	0	509	12	7

Last month the directors declared a dividend of 2s. 6d. per share, amounting to £750, the number of shares in this company being 6,000.

Victoria.—Payable runs of ore are being met with at several points along the Victoria line of reef, and recent developments are considered satisfactory. During the past financial year the company crushed 1,006 loads of quartz, for 1,790 oz. melted gold, valued at £5,042. Of that amount over £4,000 went for wages, and the general expenses amounted to £1,872. The £1,000 deposit for option made by the Mines Corporation of New Zealand was forfeited.

Alburnia.—The shaft is now down to the required depth for the opening-out of No. 6 level. The battery is putting through ore from the Sons of Freedom reef, and if satisfactory a large quantity will be available for future crushings.

Hauraki-Golden Age.—The erection of the 40-stamp mill is being pushed steadily ahead, and development is proceeding at the mine.

Gloucester.—A contract has been let for excavating a site near the new shaft for the reduction-works and winding plant.

Tararu.

Tararu Creek.—Extensive alterations and additions to the reduction plant have caused a temporary stoppage of the battery, but the cyanide plant treated 1,158 tons of tailings during the past month, for 590 oz. of bullion, valued at £475. The air-compressor for driving the rock-drill in the battery level is in course of erection, and a high-level water-race, the timber for which is on the ground, is in course of construction to work the battery and air-compressor. The reef in the battery level is 40 ft. in width, but the ore is of a low grade. In the Dunedin section the reef in the western face of the low level is 4 ft. in width, and showing gold at each breaking-down.

Tapu.

Jessie.—A satisfactory return was lately obtained from the Jessie Mine, Tapu, from a parcel of ore tested at the Thames School of Mines. The level from which the ore was obtained is about 70 ft. below the surface, in slate country. The following is an extract from the report of the Director, Mr. F. B. Allen: "The quartz occurs in ribs and veins, and carries gold in dabs and wiry particles, of higher quality than the usual Thames bullion. 1,800 lb. of dry-crushed ore yielded by pan amalgamation 4 oz. 2 dwt. 18 gr. of melted bullion, worth £3 2s. 3d. per ounce, showing a saving of 94·4 per cent. of the value."

At Puru, Waiomo, Whangamata, Tairua, and other fields development works are going on in various directions, and the erection of extensive reduction plants are in contemplation by the Whangamata Proprietary and Seavers Brothers at Whangamata and Tairua.

OHINEMURI DISTRICT.

Karangahake.

New Zealand Crown Mines.—The erection of the extensive pumping and winding plant is being proceeded with, and important explorations are going on at the low levels. The ore is of good quality, the last crushing of 1,567 tons producing bullion to the value of over £4,000.

Woodstock.—The reef at No. 5 level is 4 ft. to 5 ft. in thickness, and a good supply of ore is available, the best stone being obtained from the stopes at the back. The company's last crushing gave an average yield of £2 12s. 3d. from 1,170 tons of stone. Rising and stoping are going on in several directions, and at No. 3 level, where a cross-cut has been started from to the eastward, there are indications that the reef will shortly be intersected. The gold in the stone in the lower levels is much coarser than has hitherto been met with, and some other process than cyanide may have to be resorted to in order to extract the bullion from this very refractory ore.

New Zealand Talisman.—This company intend to put another 1,000 tons through the mill before cleaning up; consequently, there is no return this month from the battery. The general prospects of the mine are improving, and payable ore is being broken down at the different levels.

Waihi.

Waihi.—In the Welcome lode, to the west of No. 2 shaft, there is a large body of high-grade ore fully 30 ft. in width between the walls. At No. 2 level the reef has become more compact and better defined and is now 6 ft. in width, but the ore is of a low grade. No. 2 shaft is so well ahead that pumping will commence in a few weeks. The company's new reduction-works at Waikino are rapidly approaching completion. The ninety-head stamp-mill is nearly finished, and the ten large concrete percolating-vats, which will be capable of treating 250 tons at a charge, are being expeditiously proceeded with. The following are the battery returns from this mine during the past three months:—

	Tons.	Bullion. Oz.	Value. £	s.	d.
July ..	3,120	11,512	11,667	15	3
August ..	3,120	11,315	11,757	1	10
September ..	3,300	11,631	12,670	5	4

The yield of gold from the September clean-up was 2,819 oz., and of silver 8,302 oz. Last month the directors declared a dividend of 2s. per share, equal to £16,000, the number of shares in the company being 160,000. This brings the total dividends paid by this company up to £228,500.

Waihi-Silverton.—The repairs at the battery are proceeding, and the first new ten heads are completed, while good progress is being made with the water-race, which is 2 ft. 6 in. deep and 3 ft. 6 in. wide, and most of the timber is on the ground. The shaft is now down about 70 ft. below No. 2 level. The reef at this level has been driven on north for a distance of 140 ft., and south 180 ft., the reef showing a width of 10 ft., with the ore in the front face improving in quality. The lode in the stopes at the back of No. 2 level shows a width of 30 ft. at one point, and about two-thirds of the ore broken from it is put through the mill. The following are the battery returns for the past three months:—

	Tons.	Bullion. Oz.	Value. £	s.	d.
July ..	1,000	725	1,399	0	0
August ..	840	556	1,108	0	0
September ..	1,024	622	1,220	0	0
	2,864	1,903	£3,727	0	0

Waihi Consolidated.—The new pumping and winding plant is working satisfactorily, and the mine is now easily kept free from water. A well-defined body of ore, with the wavy streaks characteristic of the Waihi quartz, has been met with about 50 ft. from the shaft.

Grand Junction.—The prospecting shaft is down about 50 ft. A dam has been constructed in the cross-cut, which has succeeded in keeping the water back. Owing to the quantity of water making in the shaft on the Waihi West section work had to be temporarily suspended, but has been again resumed.

Waihi Union. — Work at the No. 2 shaft is being proceeded with, and a new Tangye pump, air-compressor, and boiler will shortly be in position for the more effective working of the mine.

Waitekauri.

Waitekauri. — The last two crushings from this company's battery gave bullion worth nearly £7,000 from 3,835 tons of ore. The lode at the kiln level is giving satisfactory results, and the stopes at the back of Corbett's level are producing payable ore, but in the western cross-cut from Corbett's level the ore was of such a low grade that operations in that part of the mine have been suspended.

Owing to recent developments of a favourable character in the old Waitekauri Mine the New Zealand Jubilee's prospects are regarded as more promising, and a small prospecting shaft is to be sunk to a depth of 300 ft. from Christie's level to intersect the class of stone met with in the parent mine.

The Waitekauri United, Waitekauri Cross, Grace Darling, and other mines in this field are being steadily developed.

Komata.

The Komata Reefs Company have commenced crushing with their newly-erected 20-stamp mill, but they intend to put 1,000 tons through the battery before they clean up. The plant includes a rotary ore-drier and six cyanide vats, with a heptagonal hopper in the centre of the vat-shed, and each vat has a hopper, thus obviating the necessity of handling to the extent that generally prevails.

Wharekiraupunga.

A parcel of 3⅓ tons of ore from the Royal Standard, Wharekiraupunga, has just been tested by the cyanide process at the Thames School of Mines. Mr. F. B. Allen, the Director, reports that the ore assayed £5 1s. per ton, and of this 93 per cent. of the value was extracted by potassium-cyanide. The ore which passed through his hands was well adapted to the process, being free from base minerals injurious to cyanide, and carrying gold in a state of fine division.

COROMANDEL DISTRICT.

Coromandel.

Hauraki.—The new machinery, to replace that destroyed by the fire nine months ago, is now in position and working smoothly. The engines are 80-horse power, so that there is sufficient capacity to enable the shaft to be sunk to a considerable depth. It is intended to resume work in the shaft at once, and further developments will be made in the Iona section of the property. The Union Beach shaft has been drained to the 180 ft. level, and operations will be steadily prosecuted below this level.

Royal Oak.—Picked stone of excellent quality is still being got from this mine, and the general appearance of the rich shoot of gold is of a favourable character. The last crushing, from 25 tons and 760 lb. of picked stone, gave a return of 779 oz. 10 dwt.

Kapanga.—The prospects of this, the deepest quartz-mine in New Zealand, are of a hopeful character. On the 1,000 ft. and lower levels, in which wages-men are employed, some nice parcels of stone have been obtained. Blocks on the higher levels have been let on tribute, and there are now thirty to forty men engaged in prospecting work. Wells and party got bullion worth £28 from 4 lb. of stone obtained near the surface, and Senior and party have bagged some nice specimens.

In a number of mines throughout the district considerable activity is being displayed, and development works are being actively prosecuted.

GREAT BARRIER ISLAND.

Barrier Reefs.—The Barrier Reefs Gold and Silver Company hold an area of 80 acres. Operations in the mine are vigorously carried on, and twenty-four men are employed. The principal works in progress are driving a low level to intersect the reef; this will give 190 ft. of backs. A shaft is also being sunk, and will be 200 ft. in depth when completed. From the low level to the surface there will be a considerable amount of crushing material obtainable. This property was formerly known as Ryan's Freehold, and during the time they held the ground a level was driven on the reef 70 ft., and a winze was sunk on it to a depth of 50 ft. The average thickness of the reef is 18 in., the quartz being of a kindly description, and assays have given favourable results. A surface level has been driven 230 ft. further up the hill than the shaft. This was started with the intention of cutting the large reef that traverses the ground. The company intend erecting a battery at no distant date.

Iona.—At the Iona Gold- and Silver-mine seven men are engaged driving a low level on the western branch of the Iona reef, the average size of which is 4 ft. At present they are in about 90 ft. The top level was driven 100 ft. when the Iona main reef, which is a very large body of stone, was cut. This reef has a dip of 1 in 1, and measures 42 ft. from foot-wall to hanging-wall; 100 ft. has been driven on the reef, with satisfactory assay-tests from different portions of it.

Kaitoke.—In the Kaitoke Gold- and Silver-mining Company's mine the No. 1 level has been driven 340 ft. to cut reef discovered on the surface, but which has not yet been proved as to size. In No. 2 level a cross-cut has been driven 100 ft. to cut the Barrier No. 3 reef. Several reefs have been trenched on the surface. No. 4 is 18 in. and No. 5 is 15 in. in width.

Great Barrier.—The Great Barrier Gold- and Silver-mining Company have done a considerable amount of work, but at present only six men are employed driving on the reef, on which 325 ft. has been driven. The reef, which is 18 in. thick, looks promising.

Mount Argentum.—This company, who hold an area of 200 acres, have four men employed sinking a winze on the reef, which is 4 ft. 6 in. in thickness. A good deal of surface driving and trenching has been done, and several leaders have been intersected.

Barrier Gold and Silver Estates.—This company are putting in a low level to cut the Barrier No. 3 reef. They are in a distance of 120 ft. through a boulder formation, but have now got a change of country, a soft blue sandstone with a good deal of water coming out from it having been met with. They expect to meet the reef when they get in 300 ft. In the Comstock section two men have been employed trenching and stripping the reef, which averages 3 ft., but the value has not yet been ascertained.

Aotea.—In the Aotea Gold- and Silver-mining Company's claim a low level has been driven 220 ft. to cut the Iona reef, which was intersected in level 90 ft. higher, and was then 4 ft. in thickness. A further distance of 200 ft. has yet to be driven before the reef is cut.

Staffa.—The Staffa Gold-mining Company hold an area of 150 acres. A low level is being driven in this claim to cut quartz that had been discovered in a higher level, and which is supposed to be a branch off the Iona reef. The present low level is in 230 ft., and 130 ft. more will have to be driven before the reef is found.

Original Great Barrier.—The Original Great Barrier Gold- and Silver-mining Company have ten men employed. In No. 4 level six men are driving to intersect the reef which has been cut and driven on in the top level; they are in 240 ft., and expect to meet the reef 300 ft. ahead. In the top level 200 ft. east and 150 ft. west has been driven on reef, the average size of which is 2 ft. The low level is in 440 ft., and 1,150 ft. more will require to be driven before the reef is reached that has been cut in the top level. A good deal of surface prospecting and trenching has been done, several reefs being stripped, ranging from 1 ft. to 20 ft. in width.

Whangaparapara.

Kauri Freehold Block.— The New Zealand Exploration and Anglo-Continental Companies are working this block under option for two years, and fifteen men are employed. A low level is being driven on line of reef, which is about 1 ft. wide. A good deal of surface prospecting has been done on different parts of this block, several reefs have been discovered, and a little work done on each of them. The reefs average from 1 ft. to 12 ft. The Kauri Gold Estates are also doing a lot of prospecting on this block, the area of which is 2,000 acres.

TE AROHA DISTRICT.

Although the effects of the boom were very early felt in most parts of the Hauraki Goldfields, the renewed activity has been rather slow in reaching Te Aroha and Waiorongomai. In the past, particularly at Waiorongomai, great enterprise was shown, and some good results obtained, but eventually there came a decline. Very slowly the industry has been re-establishing itself, and now brighter prospects are appearing. All the probable auriferous ground in the district has been taken up, and two of the larger ventures already promise, each in its respective way, to attract considerable attention. Of these, one is the work taken in hand at Waiorongomai by the Aroha Gold-mines (Limited), under the auspices of the New Zealand Exploration Company. Here the principal work at present is the construction of the main low tunnel—a very large undertaking—to be about two miles and a quarter long when completed. At the commencement the size is 11 ft. by 8 ft., but further in this has been reduced to 8 ft. by 8 ft., in order to push on to where payable gold is expected to be met. The tunnel is now in about

725 ft., of which 114 ft. were driven during August, and 75 ft. in September. The air-compressor, which is to drive the rock-drills, is now near completion, but the extremely bad weather of late retards the construction of the water-race which will supply power to work this compressor. While the present easy tunnelling holds out, however, there will be little need of rock-drills. The company are driving two other tunnels as well. One is along the main lode of the Old Colonist ground to strike its junction with the Hero lode. A distance of 547 ft. has so far been driven, but no quartz has shown, as it is along the wall of the lode. The other tunnel is being driven on the Silver King to prove the ground at a greater depth, and to strike the main lode. They drove 49 ft. on this tunnel last month, being a total distance now of 99 ft.

Close to the Township of Te Aroha the Montezuma Gold-mining Company are at work under the Rev. Joseph Campbell, whose "thermo-hyperphoric treatment" is attracting so much attention. The necessary excavations for buildings are now made, and much timber and machinery are on the ground. All parts of the machinery are up to date in every respect, and these alone will attract great attention from persons interested in mining machinery. Plant capable of breaking 50 tons a day is worked neither by steam nor water, but by a 70-horse-power Crossley gas-engine. The plant which produces the Dowson gas for driving the engine is worked in conjunction with the plant used for the manufacture both of the producer gas for heating the furnace and the water-gas for treating the ore. The ore, according to its nature, is to be either finely pulverised or simply broken to the size of peas. It will then be automatically fed into the furnace-hoppers, whence it will pass as required into the furnaces heated by producer-gas to a temperature of 2,000° Fahr. Here it remains for two hours, during which time it is subjected to treatment by water-gas, which eliminates all the base materials with which the gold is combined, however complex they may be, leaving it perfectly free for amalgamation. When treated the coarse ore travels to a grinding-mill, and thence to amalgamators of the most approved type. If previously finely pulverised, the treated ore travels direct to these amalgamators. In either case it is claimed that 95 per cent. of the assay-value will be saved from all ores however refractory. A complete laboratory has been erected, and here ordinary assays and what are termed "hyperphoric assays" are being almost daily made under the personal superintendence of the Rev. Mr. Campbell, who is devoting all his time to these important investigations, to the erection of the plant, and to the development of the reefs. The latter are immense low-grade deposits, assaying from 5s. to £5 per ton, and cross-cuts are being put in in various places to determine where the aërial tramways can be erected to the best advantage. It is estimated that the total cost of treatment will be 7s. to 8s. per ton with the present plant, but when the plans are fully carried out it is hoped to reduce the cost to 5s. per ton. Good progress is being made with the residence which is being erected for Mr. Campbell and his family, it being his intention to devote one year, or, if necessary, three years, to the investigation of the important scientific and practical questions connected with the development of the gold reefs of Te Aroha in particular and of the whole of the Hauraki Peninsula generally. Owing to the delays caused by the wet weather it will probably be the beginning of the New Year before the plant is in full swing.

Extensive work is being carried on upon the Great Western, where the Hauraki Development Syndicate (an English company) are erecting plant and opening up the ground.

A considerable amount of work, principally in the way of prospecting, is being carried on in several other claims.

MARLBOROUGH AND NELSON.

Wakamarina.

Under the new system of management the Wakamarina Gorge Claim came upon some very good gold, but as a large amount of stripping had to be done before any quantity of the wash was exposed all efforts were accordingly devoted to get the stripping done, and good returns are looked for when the bottoms are lifted.

The Wakamarina Steam Dredging Company had a return of 71 oz. for a five weeks' run ending the 9th September, when it was found that the ladder was not long enough to reach or lift the wash from the river-bottom, and the dredge was stopped pending the arrival of another addition to the ladder. The following are the returns for the five weeks:—

	Oz.
Week ending 11th August	6
" 19th August	9
" 26th August	15
" 2nd September	20
" 9th September	21
Total	71

During the first three weeks there were three temporary breakdowns, and for the first fortnight there were only two hands employed, and a firewood-cutter, working one shift per day; but after that three shifts of two men each were employed on the dredge, and two firewood-cutters and haulers were kept at work up to the time of ceasing operations. Dr. H. D. McKenzie, the owner of the dredge, is well satisfied with the results so far obtained.

As an outcome of the success attending the Wakamarina dredge, every yard of the river from a couple of miles above the Gorge Claim down to the junction of the Wakamarina with the Pelorus River—a distance of about seven miles—has been pegged out and applied for as special dredging claims.

Collingwood.

Mining throughout the district is steadily going on. A week after the notice of intention to proclaim the Aorere River a sludge-channel was published five applications for dredging claims were received by the Mining Registrar. The sawmilling plant, bullocks, horses, &c., for the Collingwood Goldfields (Limited) have been landed, and the plant will shortly be conveyed to the Quartz Ranges. About three miles of the company's tramway, from the mill-site to the ranges, have been completed, and the site for the mill is in course of preparation, while roads and tracks are being laid off.

The survey of the race from Slate River is now nearly finished, and if the report of the engineer is favourable the work will be proceeded with.

The race from McKenzie's Creek to the Rocky River Company's claim has been completed, the dam has been constructed, and everything is in readiness for sluicing operations as soon as the pipes are on the ground. The working face has been opened out, and encouraging prospects met with. It is intended later on to connect the water-race with the Rocky River, so as to obtain an adequate supply of water to work the claim in the most advantageous manner.

Motueka.

The heavy snow which has fallen at intervals during the past three months has prevented all work on the Table-land, but the miners hope to resume operations shortly. All the applications for special claims have lapsed. Further investigation on the part of those interested led them to believe that for the returns likely to be obtained they would not be justified in incurring the great expense necessary to place machinery on the ground.

Two applications for working deposits of asbestos at Mount Arthur were granted to a Christchurch syndicate, who have got mineral licenses over 300 acres. Now that the snow has cleared off it is expected that the company will shortly start work. Several men have already gone up to commence operations.

WEST COAST GOLDFIELDS.

WESTPORT DISTRICT.

Britannia.—This mine, which is situated about four miles from Waimangaroa Township, at an altitude of 660 ft. above sea-level, is under option to the Anglo-Continental Gold Syndicate for six months. There are four tunnels driven on the reef, which varies from 1 ft. to 4 ft. in width. The course of the reef lies east and west, the underlie being south and west. No. 1 tunnel has been driven 250 ft.; No. 2, 230 ft.; No. 3, 227 ft.; and No. 4, 300 ft. There are 40 ft. of backs available in No. 1 tunnel, and about 200 ft. in No. 4. The area of the claim is 100 acres.

Republic.—The whole of the battery, which consists of ten head of 8 cwt. stampers and four 5 ft. berdans, has undergone a thorough overhaul, and is now in good repair, while the water-race is nearly ready to bring in the necessary supply, and work is approaching completion for crushing.

Fairdown.

The Fairdown Sluicing Claim, which consists of 100 acres, is situated about one mile from the Fairdown Station, on the Westport Railway-line. The operations carried on by the General Exploration Company in bringing in water from Lake Rochfort to work the claim have been completed, and a dam covering an area of 15 acres, with an average depth of 25 ft., has been made. The head-race supplying this dam is one mile in length, and the race from the dam to the penstock at the head of the pipes is a mile and a quarter in length. The supply-pipes are 1,600 ft. in length, with 380 ft. of pressure at the nozzle. The height of the present working face is 86 ft. The tables for saving the gold have a surface area of 4,800 square feet, the width of the sluice being 3 ft. A large number of men were employed by this company on the different works until about the middle of August, when 162 hands were paid off on the completion of the works at Lake Rochfort, from which the water-supply is obtained. Since then only sixteen men are employed in the whole of the works. Considerable quantities of the upper gravel drifts must be removed in order to reach the payable leads.

Addison's Flat.

The Bendigo Claim, held by the General Exploration Company, comprises 140 acres at Addison's Flat, about five miles from Westport. The total number of men employed on all works in connection with this property is a hundred and thirty, Mr. Dencker being the superintending engineer, and Mr. Hill manager. The tables in course of construction for the treating of the wash from the claim are built on the bank of the Waimea Creek, their dimensions being 225 ft. in width by 30 ft. in depth, equal to a surface of 6,750 square feet, with a fall on the total depth of 3 ft. 6 in.; and provision is made so that the lower half of the tables can be raised to the required grade. Leading to the tables is a series of fluming-work 500 ft. in length and 4 ft. by 4 ft. in depth. This flume, about 150 ft. from the tables, is divided into two smaller branches, to equally distribute the wash over the whole surface. A tail-race tunnel connecting with this fluming is driven a distance of 2,640 ft., and 1,400 ft. yet remains to be driven. Dimensions: 5 ft. by 3 ft.; fall, 12 in. to the 100 ft. It is intended to line the whole length with $1\frac{1}{2}$ in. and 2 in. planks before commencing operations. As this tunnel, the cost of which is 3s 10d. per foot, is driven in marine bottom, with a good thickness overhead, no timber is required. This work is being pushed on, and three shifts of miners are constantly employed, the average driving per week being 120 ft. As a flow of water is taken down the air-shaft by pipes, the drift made at the face is washed out, saving trucking this long distance. The bottom of the tunnel, when completed, will be 15 ft. below the level of the wash-drift at the working face. A shaft will be sunk 16 ft. by 14 ft. in the clear to elevate the *débris* by means of two self-tipping cages raised and lowered on the ordinary winding principle, a Pelton water-wheel 5 ft. in diameter supplying the motive-power. Where operations are to begin the working face will not exceed 40 ft. in height, and the material to be treated carries gold nearly to the surface. 1,600 ft. of piping, 2 ft. in diameter, is now on the ground to connect water-race from dam with working face. This race is 47 chains in length, and is calculated to carry forty-five heads. It is intended to make a start with twenty-five sluice-heads, with a hydraulic head of 240 ft. The water-race from the dam to Island Creek, where the present supply of water is to be taken from, is 6 miles 2 chains in length. The dimensions of the open race are 5 ft. 6 in. in width at the bottom and 3 ft. in depth, with a batter of $\frac{1}{4}$ to 1; fluming, 330 ft., 5 ft. by 2 ft. 6 in.; tunnel, 5 ft. 6 in. in bottom and 5 ft. in height. The old race was utilised and repaired for the first mile. From the end of the first mile up to 4 miles 34 chains, 3,986 ft. of tunnelling has been completed, and 3,122 ft. is in progress, making a total length, when completed, of 7,108 ft. As the upper end of the line is very rough and hard granity country, it is proposed to lay 1,320 ft. of 20 in. siphon pipes, but this part of the work is not yet definitely settled. The grades for the end of the first mile are 10 ft. to one mile. The whole work is substantially built, and the best of timber is used. The following notes are supplied by Mr. Dencker, taken from his assays:—

> The results of prospecting on Bendigo shows 8 gr. of gold from top to bottom. The prospecting is confined by further sinking shafts, by which the results may be changed. One of the new shafts recently brought down shows from top to bottom as follows:—

	Dwt.	gr	
First 4 ft...	0	12	per ton.
Second 6 ft.	1	16	"
Third 6 ft.	0	22	"
Fourth 6 ft.	0	14	"
Fifth 6 ft.	2	12	"
Sixth 6 ft.	6	7	"

Future developments are looked forward to with much interest, the large undertakings of the General Exploration Company being instances where capital has been introduced in the prosecution of extensive sluicing operations on the West Coast.

The Shamrock Hydraulic-sluicing Claim has been working continuously since the 5th July last with very profitable returns, but previous to that date there was a stoppage, owing to a break in the water-race. The face operated on is 40 ft. in height, five and a half Government heads of water passing through a $2\frac{3}{4}$ in. nozzle being used. The source of supply is the Totara River, four miles and a half distant; there is no storage, the water being carried direct from the river to the claim. The aggregate length of the water-race tunnels is 400 ft.; fluming, 60 chains in length, 3 ft. 8 in. wide, and 2 ft. 6 in. deep. Altogether there is a capacity of sixteen Government heads, giving 350 ft. head of pressure. There are about 100 square feet of tables, and an open tail-race 60 chains in length. The gold is of very fine quality. Eight men are employed, all the work being done in one shift.

Lyell.

Alpine Extended.—There are six tributers working in No. 1 level, and they intend to try another block in the event of the next crushing not giving £2 a week per man. At No. 4 level a party of four tributers are searching in a block that was left twenty-five years ago. The winze from Nos. 9 to 10 levels is now down the required depth, and the level on line of reef has been extended in No. 10 level. A distance of 20 ft. to 30 ft. will have to be driven to connect the Nos. 9 and 10 levels.

Excelsior Dredge. — There are nineteen men employed in connection with this dredge, which is at work in Three-channel Flat. There are thirty-seven buckets on the elevators, each carrying 2 cubic feet of material, the circuit of the buckets taking about four minutes. The dredge is worked by steam, equal to 20-horse power, and consumes about 18 tons of coal per week. This coal is taken from a mine on the south bank of the Buller River, about six miles from Inangahua Junction, worked by one of the shareholders, Mr. Ansen.

INANGAHUA DISTRICT.

Larry's Creek.

Larry's Creek.—This mine is situated about nine miles west of Capleston and eighteen miles from Reefton. Nine men are employed in preliminary work, but it is intended to employ a much larger number shortly. There are two lines of reef in this company's ground—the Caledonian to the west, and, at a distance of 98 ft., there is a parallel line of reef known as the New Zealandia. No. 3 cross-cut has been repaired a distance of 916 ft., and another 50 ft. is required to be cleaned out before the solid ground can be reached. No. 2 cross-cut has been repaired a distance of 60 ft., and the line of reef is expected to be reached by another 40 ft. of driving.

Crushington.

Keep-it-Dark. — Payable stone has not yet been found on No. 7 level, and driving is still being pushed ahead. The stone raised from No. 5 level is of low grade, 300 tons from this part of the mine yielding only 5½ dwt. to the ton.

Hercules. — During the month the cross-cut at No. 9 level east of main shaft has been extended 26 ft. Very hard sandstone country was met with the whole way, the face showing no change. The total distance driven from the shaft is 434 ft. Prospecting is about to be done on a leader some distance back from the shaft.

Wealth of Nations.—The erection of the winding-engine and other necessary works for the driving of the incline-shaft are being pushed ahead as fast as possible.

Murray Creek.

Inangahua Low-level Tunnel.—This tunnel has been extended 155 ft. for the month, the face now being in 4,844 ft.

The winze in the Golden Fleece to connect with this tunnel has been sunk a further depth of 41 ft., and it is now down 367 ft.

Boatman's.

Welcome.—No. 5 level has been extended 76 ft., making the total distance driven 242 ft. The uprise has been carried up a further distance of 48 ft., making a total of 156 ft.

Devil's Creek.

Progress Mines.—357 ft. of driving and 132 ft. of sinking is the record for the month. Satisfactory progress is being made with the construction of the water-race, and in the erection of the battery and aërial tramway.

Painkiller.

Dillon Extended.—The low-level tunnel is now in 1,354 ft. The face of the tunnel is about 33 ft. past the perpendicular of the old Dillon winze, which was sunk on the old boundary-line between the Dillon and Sir Charles Russell Claims. The face is in likely-looking country.

Merrijigs.

Sir Francis Drake.—The stone from the smithy level has been worked out to the surface. No. 1 level has been extended 74 ft. north, making a total of 94 ft. since starting, the last 30 ft. being driven on payable stone 2 ft. 6 in. to 5 ft. in width. Two men have started to drive north in No. 2 level to intersect this block, and a rise has been started on the south end of the stone for ventilation. Three men are engaged in opening up a new block of stone on the surface in the Gallant lease, 500 ft. north of present workings. This block has been traced 40 ft. on the surface, and it carries gold, apparently, above the average quality.

GREYMOUTH DISTRICT.

Paparoa Ranges.

Although a great deal of ground has been pegged off in the Paparoa Ranges, and capital has been subscribed in outside places for development, only a few claim-holders are as yet engaged in active work. The Crœsus Company, who obtained some rich specimen stone, are engaged in putting in a tunnel to strike the reef in the winze, where the reef was 2 ft. in width, and showing gold freely, when they left off work. In cross-cutting along the line of reef gold-bearing stone was met with in the Homeward Bound and Red Lion Claims. At the base of the Paparoas Curtis Brothers still continue to get good returns from their claim (the Victory). Mr. Curtis, one of the owners of the Victory Claim, obtained gold worth £4,000 from the alluvial claim now being worked at Langdon's by Messrs. Shelton and Gorton.

Greenstone.

The Maori Point Sluicing Claim, which is worked by four owners and three wages-men, is yielding very well, considering the small supply of water at command. Since April, 1895, the party obtained gold to the value of about £1,000. A few weeks ago they got a nugget weighing 10 oz., and later on a 4 oz. piece. The washdirt is very rough, and some of the boulders met with weigh several tons.

OTAGO GOLDFIELDS.

MANIOTOTO COUNTY.

Naseby.

During the past month there has been a general resumption of mining operations, which at the present time are pretty brisk. Dredging has excited a good deal of attention, and the prospectuses of a couple of claims have been published, the shares in one company, to work Messrs. Brown and Barr's claims on the Upper Kyeburn, being fully subscribed. Arrangements have been made by this company for the purchase of a dredge from the Ophir and Ind Company at Ophir, and it is anticipated that dredging operations will be in full swing early next year.

Guffie and party have made a start towards placing a dredge on their claim in Main Gully, and the timber is being carted on to the ground.

The activity above referred to appears to have given quite a fillip to mining speculation, judging from the number of applications (fourteen) for special claims and licensed holdings received at the Warden's Office, Naseby, compared with the previous months of the year. The area applied for was 977 acres, and deposits were lodged in connection with the applications to the amount of £224.

TUAPEKA AND VINCENT COUNTIES.

Clyde, Alexandra, and Roxburgh.

The Mining Registrar for Clyde, Alexandra, and Roxburgh furnishes some interesting statistics, which give ample proof of the *bonâ fide* advancement of the mining industry in these sub-districts during the past ten years:—

Number of Special Claims and Licensed Holdings in force at Clyde, Alexandra, and Roxburgh on the 31st July, 1887, and the 31st July, 1897, respectively; showing also the Total Area and the Rent payable.

31st July, 1887.						31st July, 1897.					
No.	Purpose for which granted.	Area.	Annual Rental.			No.	Purpose for which granted.	Area.	Annual Rental.		
		Acres	£	s.	d.			Acres	£	s.	d.
4	Dredging	148	18	0	0	43	Dredging	2,315	942	10	0
1	Sluicing	5	5	0	0	31	Sluicing	1,013	362	15	0
1	Quartz ..	9	9	0	0	8	Quartz ..	232	66	10	0
6		162	32	0	0	82		3,560	1,371	15	0

In a footnote to the above table the Mining Registrar states that the increase in rent-paying holdings, as shown by the above figures, would lead to the supposition that the individual and small party miner had been largely superseded, but, he goes on to say, this is not the case; the number included in the latter class appears rather to have increased than otherwise. Taking as a guide the ordinary applications, such as extended claims, tail-races, &c., which indicate to a great extent the presence of the small miner, the number made during the year ended 31st July, 1887, was 350, while for the same period in 1897 the number increased to 532.

During the past six weeks fifteen additional special claims have been applied for at Clyde and Alexandra, including parts of the Molyneux River and near the former and below the latter town. Some of the areas pegged off embrace reaches of the river known by the names of Green Point, Doctor's Point, Butcher's Point, Island Basin, Nine-mile, Fourteen-mile, and Sixteen-mile, all of which places bear traditions of "untold wealth," lost to the old identities in the early sixties by the rise in the river. Five years ago most of these claims were looked upon as presenting insurmountable difficulties for working by the then known appliances, but the experience of five years has brought about considerable improvements in dredging plant, and that, coupled with the fact that the current-wheel dredge working in the gorge below Alexandra has been so successful in its operations, despite the rugged nature of the surroundings, proves that the difficulties can be overcome.

Clyde.

Six week ago a dredge which had been converted from a current-wheeler to steam commenced working on the Victoria Company's claim just above Clyde. So far she has been unsuccessful—not that she has fairly tested the ground and found it wanting in the precious metal, but from her own incapacity to cope with the depth of the ground. She succeeded in reaching the bottom in two or three shallow places, but no wash was found. Her efforts, however, to obtain this in the deeper portions of the river, where the gold is supposed to be located, have so far been fruitless. The company contemplate lengthening the ladder by about 8 ft., but, as the river will soon attain the summer level, which cannot be less than 6 ft. higher than its present condition, it is doubtful whether, even after the addition has been made, the dredge will be in a position to do what is required of her.

Alexandra.

The ground operated upon at present by the Molyneux Hydraulic Company's dredge gives ample evidence of what the future possibilities in dredging may attain, not only in this district, but in other parts of the colony. The bank she is now working presents a perpendicular face of over 60 ft. above the river-level on the inside of the cut. The dredge, which is one of the best on the river, works smoothly and effectually. The ground so far has not given any phenomenal returns, but the results are highly payable. During September 176 oz. 3 dwt. 4 gr. was obtained, the last twelve days of the month furnishing 93 oz. 10 dwt. 7 gr. of this amount.

Black's.

The failure of the Ophir and Ind Company's dredge to obtain payable gold at the lower end of Black's Flat has not been sufficient to convince some others that all the ground in the vicinity is of the same character. Since the company ceased operations several special claims of the maximum area have been applied for near the township, and by men who do not usually apply for ground without *bonâ fide* intentions of working it. Most of the area dredged by the company had undoubtedly been worked at least once before, and, the claims having been comparatively shallow and easily worked, it is surmised that very little of the precious metal had been left behind.

Tinker's.

After a disheartening spell from shortness of water to most of the parties here the claims are again in full work. The outlook for a lengthy season, however, is not a bright one, as there is less snow on the range feeding Thompson's Creek at this season than there has been for some years, and this, coupled with the exceptionally dry spring now being experienced in this locality, must of necessity seriously affect the season's water-supply.

A reservoir in the creek to conserve an appreciable quantity of water will doubtless be a work of considerable magnitude, but either this expenditure must be faced by those interested, hydraulic sluicing superseded by dredging, or highly payable ground left to future generations; but, given an ample supply of water for all parties, or a fleet of suitable dredges, the ground is good enough to make Tinker's one of the most prosperous diggings in Otago.

Cromwell.

Throughout the months of August and September the Electric Company's Nos. 1 and 2 dredges, near Cromwell, have been giving an excellent account of themselves. The returns are not published, but yet it is generally understood that this company hold one of the very best locations on the Otago Goldfields. Besides paying rent and all working-expenses, the company have paid out of their returns for the two existent dredges and laid by sufficient funds to pay for a third about to be built. As each of their dredges now working cost over £5,000, and the new one is expected to cost more than £6,000, the returns for the time the dredges have been working must have been exceptionally good. The timber for No. 3 dredge is now being placed on the ground, and the tender of Mr. Peter Sutherland for building the pontoons has been accepted. Two determined attempts have been made to jump portions of the company's ground, but each failed.

Adjoining the Electric Company's upper claim on its upper side, and running therefrom to narrows of the Kawarau Gorge, is situate the Magnetic Company's claim. Five wagon-loads of timber are already on the ground, and Mr. Sutherland, the successful tenderer for this also, intends starting building operations very shortly.

Below the Cromwell Brewery the materials for the Hartley and Riley Beach Company's claim are being stacked, and building is very soon to begin, Mr. Nees being the successful tenderer for the pontoons. A number of "hatters" were at work in this claim until an injunction was granted.

Owing to delay in obtaining machinery the Bowman's Flat Company have not yet made a start, and it is thought they will not be able to do so much before Christmas.

Messrs. Allen and Aitken, at the Nevis mouth, have sold to a company, who are having a dredge built, and expect to have it at work before many months are past. The dredges on other parts of the Nevis are all at work again, but their returns are not yet known. Mr. Crookston is not doing much at present, and Mr. McLay is not getting more than fair wages.

The Cromwell Company's tributers are doing well. Their return for four months' work was 826 oz. of gold, from 319 tons of quartz, equal to £200 per man for the ten constituting the party, after paying the company 25 per cent.

Mr. Lewis Harris has taken up a prospecting area on the Lower Lindis, and many people are of opinion that there is a large area of payable ground above the prospectors' holding.

Mr. William Wood has been granted a prospecting area on the Clutha, above the mouth of the Luggate Creek.

The miners on Criffel and Fatboys are just about commencing after their winter's spell of enforced idleness, but some time must elapse before much is known of their success or otherwise.

The several reefing parties on the Carrick Range have all got to work, but no news of moment has been heard from them yet.

SOUTHLAND AND WALLACE COUNTIES.

Waikaia.

Argyle Hydraulic-sluicing Company.—This company are operating on a highly payable run of wash in their elevating claim at Winding Creek, their last return from the elevator being 40 oz. of gold for four days' work. The layer of gold-bearing wash is 15 ft. in depth, and of a stony nature, six men having to be employed on the day shift to keep the stones clear of the elevator. The company have also a ground-sluicing plant at work on the terraces east of their elevating claim, from which good returns are being secured. Twelve heads of water are used in each claim, and sixteen men are steadily employed.

Waikaia Gold-mining and Water-supply Company.—This company are carrying on ground-sluicing operations on Scrubby Terraces, south of and about a mile distant from the Township of Waikaia. The depth of the ground now being sluiced is about 40 ft., the top layer of 8 ft. to 14 ft. consisting of hard clay. Twelve to fifteen heads of water are used in the sluice and payable returns secured, the average quantity of gold per cubic yard contained in the material treated being 2½ gr., as computed from the returns obtained.

Golden Crown Dredging Company (Limited).—This company have placed on the prospecting area held by them on the Waikaia River a large and powerful steam-dredge, having all the latest improvements, at a total cost of £3,800. Work will be commenced at an early date, payable returns being anticipated.

Winding Creek Dredging Company (Limited).—This company has been formed, with a capital of £4,000, to place a dredge on Winding Creek, on the ground adjoining the Argyle Company's claim. Dredge-building will be commenced at an early date.

Waikaka.

Dredging operations have been recently commenced on the flats in front of the township by Mr. J. R. Perry. Water to float the dredge is obtained from a small creek running into the Waikaka Stream. The ground, including 2 ft. to 3 ft. of surface soils, is 12 ft. to 14 ft. thick, consisting of a gravel wash resting on a false bottom. The gold is very fine, needing amalgamation and subsequent retorting. The motive-power is steam, supplied by a Davey-Paxman semi-portable compound condensing-engine, with cylinders 8 in. by 14 in. diameter and 13 in. stroke, having a pressure of 125 lb. per square inch. The ladder is fitted with twenty-six buckets, each having a capacity of 3 cubic feet. There being no heavy stones in the wash, a screen is not used; the buckets empty direct into a receiving-trough at the head of the main sluice-box, which is 52 ft. long and 3 ft. broad, having a fall of 1 in 12. It is provided with riffles, perforated plates, cocoa-matting, and also with two sets of side-tables to assist in catching the gold. These tables are each 6 ft. 9 in. by 5 ft., divided into three divisions. A centrifugal pump, with 11 in. pipe, delivers water to the sluice-box.

Riverton.

During the first six months of the year a good deal of pegging out was done on the western side of the Waiau River, and fifty claims were registered at the Warden's office on the 31st July, the claims applied for being principally alluvial. Thirty-one water-races were also applied for and granted. Six special claims and seven licensed holdings were applied for at Preservation Inlet, which were all granted and licenses issued to the applicants.

The Riverton Prospecting Association are sinking a trial shaft on the south-west side of the river, with the object of proving a reef said to have been traced over a mile on the surface. The shaft is expected to cut the reef at about 50 ft.

Round Hill.

This is an extensive alluvial goldfield. The gold is very fine throughout, having to be amalgamated with quicksilver and retorted. The principal scene of operations is the ground owned by the Round Hill Gold-mining Company. About 100 acres are held by the company, and the aggregate length of the water-races is about sixty miles. At present forty Government heads of water are brought in, but a continuation of the main race to Granity Creek, a distance of nine miles, is just being commenced. This will convey an additional twelve heads, making a total supply of fifty-two Government heads of water. A new reservoir is about to be constructed at the Ourawera Gorge, with a storage-capacity of 23,000,000 gallons. The main pipe-line is 90 chains long, the pipes, mostly of annealed steel, being 27 in. diameter. Branch pipe-lines, with pipes varying from 7 in. to 18 in. diameter, convey the water from the main line to the various workings, where the pressure is from 130 lb. per square inch at the upper paddock to 140 lb. at the lower paddock. The ground in the upper paddock is of a sandy character for the most part, and easily sluiced, but considerable labour is entailed in removing the buried timber which sluicing operations expose. Evidently this has been either a submerged forest or a heavy accumulation of driftwood. In the lower paddock the gold-bearing wash is overlaid by heavy blue clay and a bed of very inferior lignite, all of which have to be sluiced away. There are four hydraulic elevators, with boxes, tables, &c., and another is in course of erection. The tailings are stacked well up on each side of the waste-water course, being driven there by a jet of water at 130 lb. pressure from an ordinary sluicing monitor. The saving-tables, which are of very large area, well divided, and amply provided with plates and matting, are arranged at each side of the main boxes, which are double, and provided with riffles and plates. Every care is taken to save the gold, and any one who has to work ground where the gold is so fine as it is here would be repaid by a visit to Round Hill. It is estimated that when everything is in full working-order the cost per cubic yard of ground shifted will not exceed 2½d., and that the gold obtained, which is worth £3 19s. per ounce retorted, equals 3½d. per cubic yard of ground. Mr. George Lee, the manager, has recently patented a new form of elevator-seat for use with hydraulic elevators. Instead of being a circular intake, an oval one, provided with a pipe for the admission of air at the mouth, is substituted. The air is forced by a very small water-jet. Mr. Lee claims an increase of efficiency by the altered form combined with the air inlet. He also makes provision for a renewable throat, thus saving expense in the maintenance of the plant. With an elevator having a total lift of 50 ft., Mr. Lee claims that by his patent 70 tons of stuff per hour is lifted with an elevator jet of 2¾ in. diameter, using 5⅓ Government heads of water at 130 lb. pressure per square inch. The Round Hill Company's pipes are now made on the premises, a very compact plant having been laid down for the purpose. Work at the claim is carried on day and night. A Pelton wheel provides the power for the workshops and the electric-lighting plant. Gold valued at £1,100 was obtained for the September washing-up. The company's staff consists of manager, clerk, foreman, head nozzleman, six nozzlemen, twenty-five mining labourers, five racemen, two carpenters, two pipemakers, and a blacksmith, who also give general assistance when not engaged at their trades.

About a dozen small claims are supplied with water by the Round Hill Company when they have it to spare.

The Ourawera Gold-mining Company (Limited) commenced sluicing operations in February, 1896. The water used by the claim is conveyed from the Longwood Ranges in races ten miles in length. A dam has been erected at the head of the pipe-line, its capacity being 7,000 cubic yards. Water is conveyed from the dam in 13 in. steel pipes to the workings, the distance being 77 chains. The pipes from the main line for sluicing purposes are 9 in. in diameter, and they are elevating 45 ft. in height. The elevator, 10 in. in diameter, and dirt-pipes, 13 in., are worked by a 2 in. jet under a fall of 445 ft. Water is used for breaking down both from a high and a low pressure, the pipes used for the latter being also 13 in. in diameter, and 20 chains in length. A dam of about half an acre has been constructed for storage of the water, the fall being 90 ft. The two lines of pipes are connected together for breaking down. Water from the low-pressure can be used through the one line of pipes. This is arrived at by the use of a check-valve in the low-pressure line of pipes, this valve being shut off whilst they are using the main line for breaking-down. The gold-saving tables are constructed of a double row of rippling 2 ft. 8 in. in width and 40 ft. in length. It then passes on to eight matting-boxes. All lumps and stones are carried through the centre of the tables, and nothing but the fine sand is allowed to pass over the matting. All the water is then brought into one race at the end of the matting-boxes, where more rippling is again placed in the race, with the object of catching any gold which may escape the matting-boxes. The fall on the rippling portion of the tables is 7 in. to 12 ft. in length on the matting-boxes; it is at the rate of an inch to the foot. All gold obtained is very fine, but of a shotty nature, and of the best quality. The ground worked by the company up to the present time has all been driven by Chinamen, and such as could not be worked in any other way than by elevating. The elevator has a lift of about 45 ft., and it is simply owing to the quantity of ground the company are enabled to get away that makes it at all payable. The tail-race from the elevator to the face is constructed of wooden boxes 2 ft. in width and 1 ft. in depth, with a fall of 2¾ in. to 12 ft. in length. Having the tail-race constructed of boxes has meant a great saving of time whilst washing down. When all the water is in use there are fully nine Government heads running over the tables, the average quantity used in ordinary working being about six or seven heads. The supply of water is not very regular, and it is only by the use of dams that the company are enabled to work. Twelve men are employed in the working of the claim.

O'Brien's claim is worked by ground-sluicing. The owner has his own water-race, which carries one

Government head of water at an altitude of about 100 ft. above his claim. The working face is 35 ft. to 40 ft. thick. Vasey and Brick's claim is worked by water supplied by Mr. O'Brien. There are ten claims in the locality, worked by thirty Chinese.

Orepuki.

Although gold-mining provides remunerative labour for a considerable number of men, there are no mining works here on an extensive scale. All the claims are small, mostly held by parties of two or three men, and worked by ground-sluicing, the sources of water-supply being the Taunau, the Orouwera, and the Waimeamea Streams. The gold is of similar character and value to that at Round Hill.

McLean's party have recently completed a race eight miles in length, with a fall of 10 ft. per mile, to carry nineteen Government heads of water from the Waimeamea Stream. Of this quantity they use from three to four heads, and sell the balance to the holders of five other claims, three of which are being worked by Chinese; the water is sold at 25s. a head per week. McLean's claim carries about 1 ft. 6 in. of auriferous wash, overlaid by heavy ground of considerable depth, and a good deal of standing timber has to be dealt with.

At Weston's claim the ground is about 60 ft. deep, the wash-dirt at bottom being 3 ft. thick. This claim and two others adjacent (King and Instone's and Barry and Sorenson's) labour under the disadvantage of not getting clear water, the owners attributing it to the dirty water which discharges from the tailings of a claim into the Taunau Stream at a higher level than where their race starts, and their dams and races get so fouled that it takes eight men one day a week to clear these out.

Hennessy's claim carries about 4 ft. of rough wash, overlaid by 2 ft. to 3 ft. of sandy wash ; above this is 24 ft. of clay, all of which is removed by ground-sluicing. The claim, which has not been very long at work, is situated in the bush, and is higher up the Taunau Creek than any of the other holdings.

Love's claim is worked by driving, and Horner's claim is sometimes worked in a similar manner, when water is not available for sluicing.

At Barry and Sorenson's claim the run of gold-bearing wash ran out about three years ago; since then the work has been mainly prospecting and cutting a channel through the barren ground, and they are hopeful that good material will soon be in sight again.

All the claims, including several not enumerated above, have paid well, and the miners appear very comfortably off. There are fourteen Chinese on this field.

Waiau Beach.

The Waiau Beach Hydraulic-elevating Company are about to start working along the beach, where they have a claim of about two miles long by 1½ to 2 chains wide. Their principal water-rights are for a forty-head supply from Hollyburn Creek, but as a considerable amount of work has yet to be undertaken in connection with this supply the company have brought in a short race, half a mile in length, from Greenstone Creek, which carries four heads, and gives 100 ft. of column, equal to 43 lb. per square inch pressure. The first operations will be near the mouth of Greenstone Creek, where an elevator and tables are now being erected. This arrangement will allow of remunerative working going on concurrently with preparation for the permanent operations.

Mr. R. O. Carrick, one of the oldest goldfields' journalists in the colony, who recently returned to Invercargill from a six weeks' prospecting tour up the Waiau River, and over the great western line or chain of mountains into Fiord County, reports that he and his party of three men made a thorough overhaul of the Waiau district, which he states is all new country, and to a very great extent unexplored. The party were sent out by a local syndicate to report on the Waiau generally for dredging purposes, and in particular on two claims taken up by the syndicate. Their report is of a favourable nature, and the party brought back some samples of alluvial, principally creek and river-beach gold. Mr. Carrick was so favourably impressed with the prospects and the nature of the country traversed that he pegged off two river dredging claims on his own responsibility, and his action was approved by the syndicate, who immediately subscribed the necessary funds to secure them. He thinks that before many months have gone by a number of dredges will be at work in the Waiau and its tributary streams, as the country has many advantages, while the river is not so rapid as the Molyneux, his gauge of the current being from two knots and a half to four knots an hour. He says the Waiau is full of by-washes, blind channels, and silted basins, the river being a succession of bars or dikes of rock, intersected with a rotten slate or highly-decomposed Silurian matter. The country about the Waiau is well timbered, and punts and boats could readily be built on the ground. As the Upper Waiau is only from one and a half to two days' cartage from railway-communication the conveyance of iron-work would not be a serious item. The Waiau drains a winter, not a perpetual, snow-line, and between the months of December and May the highest ranges are utilised for sheep-grazing, so that there is every prospect of the river being workable during the best season of the year. The party did not get the country over the western chain towards Hauroto and Monowai as well prospected as they intended, owing to the loss of their pack-horses and provisions, and they had to return to save themselves from starvation.

COAL-MINES.

The output from the Westport Coal Company and Westport-Cardiff Company for the past three months was as follows:—

	July. Tons.	August. Tons.	September. Tons.
Westport Coal Company ..	21,129	21,795	20,578
Westport-Cardiff Company	3,618	4,600	4,317

Of the total output (76,037 tons), 932 tons were exported to San Francisco, 1,254 tons to Honolulu, and 895 tons to Fiji, in July; and 841 tons were shipped to Fiji in August. The number of steamers and sailers entering the port for the three months was:—

Month.	Steamers.	Sailers.	Tons Register.
July	62	2	19,249
August	79	1	24,627
September	64	1	21,123

The mean depth on the bar was—July, 20 ft. 7in.; August, 20 ft. 3in.; September, 19 ft. 8 in. The mean depth in the river during the month of September was 18 ft. 8 in.

The Westport-Cardiff Coal-mine, which continues to be managed and worked in a satisfactory manner, is being furnished with a new ventilating-fan, on the Schele principle, constructed by Mr. Seagar, engineer, Wellington. As this is the first ventilating-fan of the kind built in the colony keen interest is evinced in its success, and its working will be watched with much interest.

The Mokihinui Coal-mine is for a time shut down, a caretaker only being employed to look after the property and attend to the ventilation, so that an accumulation of gas does not take place.

The coal-mines of Canterbury were visited by Mr. John Hayes, the Acting Inspector of Mines, during the month of August, and on the whole they were found to be in very good working-order, careful provision being made for the safety of the workmen; but the quality of most of the coals, coupled with the want of direct railway-communication and the distance from the larger centres of industry and population, precludes the possibility of a large output from any of the mines. There appears to be no doubt that in point of quality the Brockley coal stands foremost. It is not at present being worked, but the ground has been acquired by a Christchurch syndicate, who contemplate further prospecting and development.

In Southland a company is being formed for the purpose of working the Glen Dhu, about eight miles from Mataura. The outcrop of a very fair seam of brown coal has been found, and also thin seams of bituminous coal on the same property, at the side of the Hokonui Range. This latter appears to be of Mesozoic age, and its existence in thin seams has been known for many years in several parts of the Southland district, where the rocks of the same geological system are exposed. The output of the Kaitangata Railway and Coal Company's mine continues to improve, their sales for the past half-year being close on 45,000 tons.

THE NEW ZEALAND PREMIER ON NEW ZEALAND MINING.

[*British Australasian*, 29th July.]

DESPITE the fact that Saturday last was a Stock Exchange holiday, a representative audience of City men assembled at the Cannon Street Hotel to hear an address from the Right Hon. R. J. Seddon, P.C., LL.D., Prime Minister of New Zealand, on the mineral resources of the colony. The meeting was held under the auspices of the Incorporated Australasian Chamber of Mines, and Mr. John Lowles, M.P, presided. The following were amongst those present: The Hon. W. Pember Reeves, Agent-General for New Zealand, Sir Howard Vincent, M.P., Mr. H. Seton-Karr, M.P., Mr. T. Mackenzie, Sir Somers Vine, and Messrs. H. Baacke, E. W. Bacon, W. F. Bloomfield, R. B. Brett, O. G. Browne, Wm. Buttle, John Christie, J. C. Colledge, Geo. Cowie, J. Ditchburn, jun., Jules de Meray, F. Dutton, L. Ehrlich, Arthur Fell, W. Ford, G. Gilbert, G. H. Gordon, F. E. Harman, Col. J. Harris, Messrs. Wolf Harris, Cecil Hartridge, W. Herbert-Jones, D. Hickie, Wm. Horne, Chas. J. Holdsworth, R. Hunt, W. T. F. M. Ingall, Robt. Kilpatrick, W. J. Lavington, A. J. Lindsay-Simpson, G. A. Litchfield, John McDonald, Jas. Macandrew-Macdougall, Dr. Marsh, Messrs. F. C. Mathieson, J. Maynard, L. Meldal, Philip Mennell, Thomas Mills, H. B. Milne, A. Molyneux, C. Rous-Marten, W. Phillips, J. J. Rendle, Hy. Richards, Ross Robinson, Hy. Sanson, Alex. Sclanders, G. Scrope, Thos. Seaber, P. Selby, A. H. Singleton, C. Stanhope-Jones, G. H. Stayton, H. F. Tahourdin, F. W. Turner, R. F. H. Webb, F. H. Whalley, Hy. S. Whalley, T. Whitworth, J. H. Wood, and D. Ziman. The following institutions and firms were also amongst those represented—viz.: The Bank of Australasia, J. C. Eley and Co., Exploration Co., Hedley, Sons, and Co., Mines Corporation of New Zealand, and the Scottish Australian Mining Co.

The Chairman: Gentlemen, I want first to congratulate Mr. Seddon upon having so good a meeting before him on what is an off day in the City. It is a Stock Exchange holiday, but for all that we have a number of Stock Exchange gentlemen here, and I think we are very fortunate in having so good a meeting to not only welcome Mr. Seddon, but also to bid him God-speed, for he leaves us, I am sorry to say, to-morrow morning. I think it is exceedingly kind of him to give us some of the last moments of his valuable time here, when so much pressure is being put upon him in all directions to go elsewhere; but I cannot help feeling—Mr. Seddon, I know, is a practical man—that he will regard this engagement as not the least important amongst the many which he has fulfilled during his sojourn in England. I say this because there is one thing I have found myself in my intercourse with the leading statesmen of our colonies—namely, that they have an intense desire to develop that corner of the world over which they exercise their beneficent rule, and I think there are none of our colonies and there is no part of the Empire in which more varied and rich natural resources are to be found as in that beautiful Britain of the South, New Zealand. (Applause.) I perhaps ought to say—it is, I dare say, a matter of common knowledge—that this meeting is held under the auspices of the Incorporated Australasian Chamber of Mines, and I may perhaps just briefly say what the object of that Chamber is. It is a non-profit association; it is registered under that section of the Companies' Act which prevents the making of profit, and its sole aim is to bring to the knowledge of the Home investor, from the purest sources from which it can be obtained, information concerning the vast resources of various kinds which are awaiting development in the distant parts of the Empire. Now, those who have been privileged, as I have been, to travel over the various portions of the Empire must have been struck with the enormous virgin resources awaiting development there, and I maintain that any individual or body that helps to develop those great resources is doing good not merely to the colonies in which they exist, but also to our people at Home; because there is another side to this development question. These colonies draw their supplies, their manufactures, their machinery, and articles of consumption that they do not make themselves from the Mother-country, and therefore every addition to their purchasing-power, which, of course, the development of their resources induces, is at once a stimulant to the demand for the manufactures of the Old Country, and therefore the benefit is mutual; it permeates every class and every section of society. Now, I am not going to stand between you and Mr. Seddon, except to say this: that I know the subject on which he is going to speak to you will be dealt with by him from a practical point of view. He himself has had something to do with mining, and I am perfectly certain that we shall not only have an interesting address from an oratorical point of view—because I have had the privilege of hearing him address about three thousand of my own constituents for a very long period without tiring them—but we shall also, I am certain, have placed before us to-day some information which will be useful, and, at the same time, practical. Our distinguished visitors are leaving this country. The more we have seen of them the better we have liked them, and I hope I may say that the more they have seen of us the better they have liked us. They are going away. Our hearts are full of mutual good-feeling towards each other. But I think their visit would have been wasted if the results were merely sentimental. But I am glad to say that Mr. Seddon—I think it is true of the whole of the other Premiers who have been our guests here, they are all desirous of leaving behind them some good impressions from a practical point of view of the colonies they so well represent, and of inducing—which is a perfectly legitimate object and one I myself am thoroughly in sympathy with, and do all I can in my small way to encourage—British capital to be placed in British enterprises in various parts of the Empire rather than in uncertain foreign enterprises from which the return is doubtful. (Applause.) Well, I might perhaps just say this: that this Incorporated Australasian Chamber of Mines proposes to get from Government sources—and it has had from each of the colonial Governments assurances of unstinted support in that direction—reports and information concerning the various openings for capital, and this will come from sources which will be perfectly untainted, and which may be perfectly relied upon. Then, it proposes also to give knowledge to the other side, whilst receiving knowledge from that side; it proposes, in the course of its practical operations, to have a register of mining engineers not only in the Old Country, but also in various parts of the world, and it also has an ambitious desire to put before this country in the metropolis here some examples and practical illustrations of mining industries in various parts of the British Empire in the shape of a mining and metallurgical exhibition, it is hoped, the year after next. (Applause.) I am quite sure those objects will commend themselves to you, and I am quite sure the unselfish objects of this Chamber, productive, as I hope and believe they will be in their practical outcome, of vast good to the colonies as well as useful to the Old Country, will be taken up with as much zeal on the other side as they have been taken up here, and that the result will be of mutual benefit both to the Old Country and to the new. (Applause.) The secretary sends up a note to me just mentioning the shortness of notice as the reason why we could not secure a better audience. Well, I am quite satisfied with the audience. (Hear, hear.) It was only on Thursday we knew Mr. Seddon was able to come, and I have already explained we are grateful to him for giving us some of the last moments of his valuable time here, and I am sure he will feel, in addressing such an audience interested in the great colony he represents, that he has not wasted the closing moments of his visit, but rather used them in a most practical and common-sense way. (Applause.) I have pleasure in asking him to give an address on the resources of New Zealand.

The Right Hon. R. J. Seddon, who was enthusiastically received, said: Mr. Chairman, ladies, and gentlemen,—I am very pleased indeed to have the opportunity of meeting you to-day. You will remember that shortly after my arrival here I publicly stated that before I left the Mother-country I would prepare a short *précis* of our mining laws and regulations for distribution amongst those particularly interested in mining in our colony, as I found that there was grave misapprehension existing in respect to matters which I shall deal with later on, and which are of importance to the investing public, as they are also important to our colony, because, owing to this misconception of the position of the law, an injury was done to the colony, whilst investors themselves were in error in having come to the conclusion that had evidently been arrived at. I found, however, that what between British hospitality and other functions and business of a public character which I have had to perform, and although I have been working late and early since I have been here, and done my best to devote my time to numerous functions, including dinners—and I am glad to say without any detrimental effect so far—(laughter)—I have not been able to keep faith in respect to providing the *précis* that I promised. However, when I was asked to address a meeting on mining I thought it, at all events, would to some extent, if I delivered an address, extenuate, and I am pleased, therefore, to meet you here to-day. Now, I assure you I am not going, as my worthy friend has led you to expect, to give you something in the way of oratory. I know the audience I am speaking to, and am sure you do not want it, even though I was able to do it. What you want to know is, "What are the prospects of mining in New Zealand, and if we put our money there is it fairly safe?" You want to know what the law is in New Zealand, and the effect of that law upon your investment and upon mining, and I am here to speak to business-men, hard-headed men, and in bringing matters before you I shall deal with them so that we shall understand each other, and, if there are any doubts existing, that those doubts may be removed; and as far as it is in my power I will give you such information as will create, I hope, a confidence, and let you feel that in dealing with us and with our colony you are dealing practically with yourselves. (Applause.) Now, of course, the first question you will naturally ask is, "Does Mr. Seddon know anything of the subjects upon which he is going to speak to us?" It is very hard for any one to say much about oneself, but I may say that, although I am the Prime Minister of New Zealand, I will speak to you to-day as though I was holding the position I held for many years—viz., that of Minister of Mines. (Applause.) As to my ability otherwise, I have spent some time of my life as a practical gold-miner—(applause)—and for over twenty years I have been a registered advocate, dealing with nothing but mining matters in the Wardens' Courts in the colony. Then, as an investor in mines, a mining expert, and mining engineer, if you were in our colony I think it would be admitted that upon these points my evidence and my experience would go for a great deal. I therefore wish you to understand that in speaking upon mining and the mines of our colony, past, present, and future, I am speaking as one who has a thorough knowledge, both practical and technical, of the subjects that I deal with. (Applause.) First of all, as you are aware, our gold discoveries took place about the year 1857. From that time to the present I think there has been gold exported to the value of fifty-one millions. Now, that is exclusive of the gold that we have had and used for local purposes; I am alluding now to the gold exported. You will naturally say, "Very well, gold is not a recurring crop, and after having found, won, and exported so much you have depleted your country and its gold-bearing mines to that extent, and hence it is so much the poorer." My reply to that is this: that taking into consideration the methods adopted, the appliances used, and the fact that I shall give you—that I think the deepest shaft that we have yet where they are getting gold—is only about 600 ft. deep it will, I think, be readily admitted that when mining experts say that as yet we have only been practically scratching on the surface that statement is correct, and that is all that we have been doing up to the present. Very well! Take, then, the appliances and methods of extraction. For years we have reckoned that no quartz lodes would pay unless they yielded at least 10 dwt. to the ton. When I was over in Australia the other day I found that they were there making less than 5 dwt. pay by the new processes and the up-to-date appliances in use. There are, therefore, many quartz lodes in New Zealand that in days gone by would not have been looked at, or worked, or touched, which to-day are considered of value, and will be worked. Then, when in Australia I found that at Lansell's Mine, at Bendigo (No. 180), they are getting very rich quartz at 3,000 ft. We have, therefore, in New Zealand to go a good way down before we touch what they are doing there. We have had a Victorian expert over in New Zealand, and from the information received from him and from our own experts it has been clearly demonstrated that we shall get good payable quartz from the deep levels in our colony. I will take, then, the gold obtained of late years. In last year's export you will find a slight falling-off as compared with that of the previous year. In the year ending 31st March, 1896, the export of gold was 302,690 oz., of the value of £1,196,081. In the previous year ending 31st March, 1895, the export was only 222,981 oz., of the value of £889,545, a difference in favour of 1896 to 1895 of over £300,000 in the value of the gold exported. Now, last year—1896–97—you will find that there has been, as I said, a slight falling-off, and since March this year you will find also that there has been a diminution. May I tell you that you gentlemen here are responsible for that. You ask the question, How can it possibly be that the London investors are responsible for the falling-off in the gold exported from New Zealand during the past year, and more particularly when they have invested large sums of money? It is in this way: It arises from the fact that when experts were brought to carefully examine some of our best mines, and to look at the appliances and the methods used, they simply said, "Stop work; away with the old machinery; sink your shafts deeper; work from the dip and not work up," as we had been doing in our primitive way of working the mines. Well, whilst these improvements have been going on, whilst the shafts have been sunk, and whilst the winzes and stopes have been driven, it has been impossible for you at the same time to have the same amount of gold as before. New machinery has been ordered, crushing plants have been ordered, and these plants are in course of erection. You will therefore understand why, with your increased capital invested in the mines, the output for the present is less. You know that in many of the most valuable mines we have practically stopped operations, or, at any rate, crushing. I want you to understand that, and to meet what has been argued against us—namely, that notwithstanding the increased investment of moneys in the mines, there has been a decrease in the output. But I look forward myself next year to a considerable increase, because I know that new batteries will be in use, and there will be a new system of working, and the adoption of new methods of extraction will have come into force, and although one can never prophesy, and it would not be wise to do so, neither should I, with the responsibility cast upon my shoulders, say more than what I do reasonably believe will eventuate; yet I have little hesitation in saying that I believe next year there will be a considerable increase in the output of gold in our colony, and that in the following year there will be a still further increase. (Applause.) I do not want to weary you with figures, but I will give these returns to the Press, and you will enjoy them more by reading them when you are having your breakfast, possibly, than if I were to read them now. Suffice it to say that up to the 31st March, 1896, Auckland has sent, £7,410,433; Wellington, £706; Marlborough, £327,962; Nelson, £989,609; West Coast, £22,280,426; Canterbury, £192; and Otago, £20,643,176: making a total of £51,652,504 in the value of gold exported. Now, you will want to know how many men are employed. The number of those employed on coal is 1,799; on cinnabar, 26; on gold (alluvial), 9,061; and gold (lode), 3,994; antimony, 3; silver and silver-lead ore, 2; and undefined, 110. You have in round numbers, therefore, the number of men employed upon our gold- and coal-fields in New Zealand. Now, excluding boys, reckoning these men's wages at the different places—varying from £2 10s. up to £3—and bringing into the calculation the output of gold, making a fair allowance for the gold used in the colony and for administration costs, it will readily give you some idea as to the profits which are obtained from the gold won from the ground. Then, take the results of the quartz-mining in the North Island and the Middle Island. You will find that by far the larger figures are shown by the North Island in reference to the gold obtained, and that in the last two or three years there have been developments in the North, on the Coromandel Peninsula and Thames, which have raised considerably the output, and brightened the prospects of quartz mining in these and other parts of the colony. This brings me to a question that I know has caused you a considerable amount of anxiety. I allude to the legislation which more particularly affects the discoveries of gold in the North Island. I refer to the legislation respecting mining on private lands. Since the year 1873, in respect to the resumption of lands upon which gold or silver has been discovered, there was no question, because the law was defined—namely, that there was a power under the resumption clauses of the Mining Act—not the Land Act—and no one, either in our colony or outside, would ever question the right of the Crown to resume if gold was discovered upon lands purchased since the year 1873. But as regards lands bought prior to 1873 the law was silent. We have no specific legislation. The common-law right existed, but many were in ignorance of that fact, and probably owing to that some misconception may have arisen. People—innocent investors—may have purchased believing that if they bought the fee-simple of the land and held it that carried with it the gold and the silver. Now, those, of course, who have made a study of this matter, or those who have watched the case of the Queen *v.* Morgan, a case tried here in the Mother-country in reference to Mr. Morgan's contention as to the right to the gold found in Wales, must know that the decision there was clear and emphatic—namely, that the holding of the fee-simple of the land did not carry with it what are known as the Royal metals, the gold and the silver, that they vest in the Crown, and can only be taken from that land on payment to the Crown of such royalty as may be determined, and on such terms as the Crown may give. To you that is clearly the law, and as that applied to the Mother-country it applied to the colonies also. Having no law of our own, we should have had to fall back, if any dispute had arisen, on the common law. That was the position. Now, exception was taken to the legislation we passed. We deemed it desirable as a wise and prudent policy, and to prevent any misunderstanding, that the position should be defined, and that we should pass a law dealing with this phase of mining in our colony, because we did not do it at the time, and, knowing that this misconception was in the minds of investors, we should have been parties, in my opinion, to a wrongdoing if we had allowed it to go on. I consider, myself, it is the boldest, most honest, and will ultimately prove the most beneficial policy to define the relative positions, and then each one knows what he is doing. (Applause.) I assure you, gentlemen, it was a very complicated question to deal with. Had we been dealing with the parties who first alienated we should have had no difficulty at all, but there was a complication which came in with Maori leases — lands bought from the Maoris—and the point was raised as to whether in the sale of the lands the Maoris had ceded their rights to the gold. Upon that point, after investigation, there was a very definite and clear decision given—namely, that by the rights ceded, and by the treaty between the Natives and the Government, and the agreements between the Government and the Natives, the gold and silver vested in the Crown. That removed the difficulty in that respect. Then we had to deal with cases which had arisen, and where, as I say, investors had invested their capital under a false assumption. Of course, you know they will tell you in certain Courts that ignorance of the law is no excuse—that you ought to know it. It would be said, perhaps, by some who took a very strict view of the situation that those who were investing their money ought to have known the legal position. I say that, finding as a Government that there had been this misconception, we should not act in a Shylock spirit—(hear, hear)—and there ought to be a fair give-and-take. Well, we have by the Act of last session met the difficulty fairly. I say that the Crown could not relinquish every right, because we had side by side with the owners of the land those who had prospected and spent money, and had made the discoveries of the gold on the lands, whilst the owners had done nothing at all except this: that after money had been spent and labour expended in making the discoveries they were the first to rush to London and to other centres, and to ask—and, in some instances, to obtain—from British investors an auriferous value which never belonged to them at all, but belonged to the Crown, and yet they sold their lands on the auriferous value. This was the position. Their interest in the land was simply, as I have said, in the surface. No one else could go upon the land or touch the minerals. As I say, the Crown could not take, and the owner could not take, and there was a deadlock, and what we have done by the legislation is this: We have said the owner shall have a right to the particular lands and the Royal metals therein prior to the passing of this Act. We have said to the prospector that he also shall have a right, on his application, to some reward for having discovered and made the land valuable, and, when it comes to dealing with it by the Warden, that his claims to consideration shall not be ignored. But the Crown has waived altogether its own rights. We have not said to either party, "You shall pay us a royalty for the gold that is in the land." I wish you to understand that the situation was very difficult, and that so far as the Crown is concerned, and so far as our Legislature is concerned, we have passed an Act now which has fairly met the owners of the land, fairly met those who had invested in these private lands bought before 1873, and at the same time recognised the work done by the prospector; and, what is more than that, it has removed the doubt that existed, and you now know where each party concerned is in that respect, although there may have been some friction, and there has been a misconception and a fear created for which there was no good ground, brought about in some instances by those particularly interested, who, to create feeling and to bring pressure upon the Government, really magnified the difficulties and made the matter all the worse for Parliament to settle. There were others, again, who put the other and too bright a side upon the question, and who also in that respect profited by those who listened to them. I say that I trust all here will now clearly understand that the Government of New Zealand, with the difficulties that beset the situation, have really done what was fair and honest as far as we could to all concerned. That is what we have done. The next question that comes is this: I myself, without throwing any doubt upon investments in respect to private lands, wish to tell you here that the tenure given by our colony under our mining laws for mines which are Crown lands is equally as good and as permanent as though it was freehold itself. I tell you here that there is not a single case—and we have been gold-mining since 1857—where you can say the Crown refused to renew the rights after the time for the first lease had expired. (Applause.) I have a suggestion which I shall submit to my colleagues when I go home. You have pamphlets circulated broadcast as to the beauties of our country for the guidance of tourists who intend going through it, and all other countries do the same. Now, one of the finest things, to my mind, that could happen would be for the Government to have their Mining Acts in a condensed form sent to every Mining Chamber, every Stock Exchange, and presented to every man who wants to invest or take any interest in mining whatever. (Applause.) Going back to the question of renewals, I was saying there was no case where the Crown had refused to renew after the expiration of the maximum time fixed by law. But if you look at the regulations you will find where special provision has been made for application to the Wardens and to the Courts for renewals. Every facility is given, and though it is not mandatory, yet I would say, from a careful perusal of the law, and from thirty years' experience on the goldfields, that it is absolutely directory that where there has been a *bonâ fide* expenditure of money and working of rights and the time has expired—twenty-one years, or whatever it may be—whether it be for water rights, work on alluvial or quartz rights, it is absolutely directory that there should be a renewal, and I feel satisfied myself in saying to you that, subject to these conditions and regulations that are therein imposed, you need not fear, if you do your share, as to your rights being renewed when the time for which they are now granted expires. This brings me to another phase of the question—namely, the conditions of working the mines whilst they are occupied by you. Some have said that the labour conditions are too severe. Those who make that statement, gentlemen—I hope I may offend no one here in this room—do not know what they are speaking about. So long as there is a *bonâ fide* occupancy, so long as there has been a *bonâ fide* development, there is no chance whatever for the jumper; and here, again, I hope I shall not startle you, but I do not know in late years of a case in New Zealand where the jumpers have succeeded. (Hear, hear.) We have the Warden, who sits there with almost the powers of a Supreme Court Judge, and, if there is any information laid as to non-compliance with conditions, both parties put the position before him, and if there has been an omission—a proved omission—it is in the power of the Warden to levy a small penalty and still to maintain the rights. On the other hand, he has the power of dismissing, and I am pleased to say that, if anything, the Wardens, in the administration of our mining laws, lean, as I think they properly should, to those who have taken up the mines, have been in occupation, and can prove a fair expenditure in development. (Applause.) I think they lean in the right direction. (Applause.) I will come, while speaking on this, to the other side of the question, and I want to show you how it is necessarily in your interest as capitalists to have these conditions. I have found—and I know it exists now in our colony—that, whereas in some cases companies have been formed, capital has been invested, and you are going on sinking shafts, driving tunnels, erecting machinery for crushing, and spending large sums of money to develop the piece of land that you hold and upon which these conditions are imposed, in other cases there are a number of men who have done nothing more than put in four pegs, bits of wood—a day's work—and on the strength of your money and your expenditure they are waiting there with these wild-cat speculations. If you strike a lode going in their direction all the claims on that line immediately become of great value, and they have some one here in London to whom a cable is sent, "Gold struck in such-and-such a claim; we are in the same line. Raise the price £20,000." (Laughter.) Well, do you think it is right to allow that state of things to exist? No; and if there are cases where men mark out large tracts of auriferous lands and hold under these conditions it is in the interests of the *bonâ fide* investor and capitalist that these men should be made to do what you are doing, or otherwise you suffer, and they make money at your expense. (Hear, hear.) Again—and I want you to understand this—you see there is a large body of men employed on the mines—a large body of men who flock to the mines, and who are honestly prepared to do what is just in the way of developing the field, but they are locked out of these "wild-cat" lands, where nothing is being done. These men are stopping the *bonâ fide* miners from prospecting or working in other directions to earn a living, and the miners naturally say, "Why should this condition of affairs exist?" And the law says it shall not exist. In reference to the *bonâ fide* occupier, the man who works his mine, or who cannot work it, but is ordering machinery, or the man who is driving his tunnels or sinking his shafts with the view of testing his mine, though a certain number of men should be employed according to the conditions, when the mine is in full work there is power given to the local inspector to hold over those conditions. Or, if you want to go further, you go to the Warden, and he has power also to suspend the labour conditions. Or, if you want to go further than that, you go to the fountain head, the Minister, if you want a much longer period than the Warden can grant, and he has power to grant it. And, again, I want to tell you that in respect to this matter, where there has been a company formed and capital subscribed, and where they are clearly and legitimately doing their best, I say there is no case in our colony under those conditions where the jumper has succeeded, and I hope there never will be. Now, I want to tell you another thing which is in favour of our colony, and that is that with us a strike of the miners is impossible, as it is also impossible for the owner of the mine to shut down, and that is a condition of things which I do not think prevails anywhere else. There is a safeguard there for you. We, by this legislation, say that if there is any dispute as between the miners and the mine-owners either party can ask the Conciliation Court to discuss the situation. Two men are appointed by the mine-owners and two by the miners, whilst the Government appoints an umpire; and, as a rule, we select the Wardens, who are men of tact, and thoroughly understand the taking of evidence. The questions are submitted to this tribunal, and probably without anything further being done an amicable arrangement is arrived at, and there is no trouble. If they cannot agree in the Conciliation Court it goes to the Court of Arbitration. That Court is thus constituted: Two are selected by the employers, two by the employés, and a Judge of the Supreme Court sits as the umpire, and he sits there by law. The result has been in the cases we have had that I think in the majority of cases it was practically "as you were," and the others I think are equally divided. But the result has been this: that even the employers, who were the first to object to that legislation, are to-day the strongest in favour of it, because where they have contracts in hand where there is a large amount of capital invested the effect of that capital being laid up for weeks, and exactions being demanded which that capital could not bear, would be as disastrous to our other industries as it would be to our mining. The law as it stands now has prevented disputes which, if they had happened and there had been an industrial struggle, must have meant a loss of about a million of money to us as a small community, whereas the whole cost of the proceedings and the whole thing summed up would not amount to £1,000, and the whole thing is settled. I thought it was necessary that I should give you this information, because you have with us in our colony a safeguard in that respect that I do not think you have in respect of any other goldfields existing at the present time. I think, sir, I must now leave that subject. I have told you about the position of the law; I have told you the position of the work; and I must give you some little idea now of the future from knowledge that I have and from my experience as a mining expert, a mining engineer, and a practical miner. First of all, I want you to understand, gentlemen, that with gold in the lode, with a fair capital, and with a fair margin as between profit and loss, you are safe. But how is it possible for you to expect, as I know some do expect, that when mines that are worth £50,000 are loaded, owing to the financiers, with another £50,000 or £100,000, the gold in the quartz is going to be increased accordingly? (Laughter.) I cannot say. I have often heard it said, "It is no use going to London with anything under £100,000," and that where men would have started and been satisfied if they could have been financed with £50,000, because you capitalists here wanted something big they have said, "You can have it," and they have put on another £50,000. (Laughter.) I do not say that is correct, because if it is correct it is a reflection upon the London investor and capitalist, but there are statements to that effect that one hears. I do caution you, and think it is always prudent to do so, that this heavy loading in the way of capital in the centres thousands of miles away from the mines will not help the mines one jot; but, on the other hand, those who have their money invested will want some returns upon it, and the mines won't give it. It is a question, therefore, whether it is to be speculation and money made by speculation or whether it is to be money invested in mining, and by the honest working of the mines to have a return upon the capital so invested. (Hear, hear.) I say that I am for the latter. (Hear, hear.) And I will warn investors against paying these large sums of money. If you will ask for a return as to how much has been invested in the mines of New Zealand—that is, how much money has been spent in prospecting, development, machinery, and appliances for the working of these mines, and in labour—you will find that the profits given by the mines are almost startling. That is the position. But if then you get a return showing the number of companies that have been formed with a huge capital, and the amounts paid to those who have done nothing except to have been fortunate enough to place the mines, you will find probably that the mines have only paid 4 or 5 per cent. upon the amount. I hope I shall not startle you when I tell you about that, but I know of one little district alone on the West Coast where there was £400,000 that had been paid over and above everything, after the payment of capital, and there was still that left; spread over the mines, even with this loading, there was a fair percentage, but that cannot go on for ever. I am pleased to find you have a Chamber of Mines, and that this Chamber is to place itself in communication with the Chambers in the colonies and with the Governments, and as between the two you ought to have such information as will prevent persons placing upon the market mines at an almost ruinous value. Speaking for our Government, I may tell you, without committing the colony in any way—for I do not think that would be a proper position for a Government to be placed in—that, as far as any information at our command is concerned, we will have that information sent to the Chamber of Mines here, or to whoever applies for it, so that we may assist in promoting legitimate mining in our colony. (Applause.) I wish, sir, to say, further than that, that if you take the statistics of our colony you will find that from 1853 to 1895, which includes the latest returns I have, our little colony has sent away gold, silver, and other precious metals to the total value of £64,775,629. I will now leave gold-mining and go to another phase of the question. We have in our colony, both in the South Island and North Island, very large deposits of coal. We have been told that at the rate you are going on now in the Mother-country you will not be long before you run short of this commodity, and, if that should prove to be the case, New Zealand is to be the place that will supply the world with coal. Should that be so, although it will be a very regrettable matter if your deposits run out, still, you will be better pleased, I suppose, to have your coal from one of your own colonies than to get it from foreign nations. (Applause.) I may say that we have only very recently, on the West Coast, had a very fine discovery of cannel coal; we have shale in Otago and in other parts of the colony; but what I have said about gold also applies to coal—namely, that I suppose the deepest shaft we have on any of our coal-mines at the present time would not be more than 300 ft. to 400 ft. However, I think it wise to mention this to you. I will give you the returns at the present time. The approximate output to the 31st December, 1895, was 9,957,222 tons. We have bituminous, pitch, brown, lignite, and lastly, owing to the discovery near Greymouth, the cannel coal. I will leave this subject here, and now come to the position of our colony in other respects, to which our chairman referred. Our population is about 750,000. We have a country much larger in area than England itself. That population and country exported last year produce worth over £9,000,000, importing, we will say, to the extent of some £8,000,000. The total trade therefore is something like £17,000,000 sterling. You will, I am sure, say that is almost wonderful for a small population and for a colony that has only been so recently populated. But I must tell you that we, like yourselves, belong to a race and spring from a stock who mean to get on in the world. We have wonderful facilities in New Zealand, and we are utilising our country to the best advantage, and such has been the result of our labours that when I come back to the Mother-country and meet the people here I can tell them that they have no reason whatever to be ashamed of the people of New Zealand. (Applause.) We have about 9,000,000 acres down in English grasses; we have nearly 20,000,000 sheep; we sent away last year frozen meat worth over £1,200,000; and, further than that, there is still room for development. Now, you sent your money to us to help to develop our colony. We have paid you for everything we have received from you. I wish you to thoroughly understand that. But, notwithstanding that we have done so, we at the same time say that we feel that, having as man to man helped each other, there ought to be a reciprocity, and I trust that so far the people here in the Mother-country are satisfied with what we have done for them in New Zealand—(applause)—and that we shall go on doing it, and I hope still further improve. But this brings me particularly to a point I want to touch upon. I have been on the goldfields over thirty years—that is, it is thirty years since I was first on them—and when I come for a pick, a sluice, a fork, an axe, or a mining appliance of any kind, I never get one that is manufactured in my Mother-country; they are all American, and why on earth that should be so I cannot understand. (Hear, hear.) It is a reflection upon some one, and the sooner that is remedied the better. British capital is sent to develop the various enterprises in our colony, and then when you want implements, tools, and appliances, to have to go somewhere else for them is something which I do not like. I would much prefer, if I were a miner, to use that which had been bought and paid for, and the purchase of which had helped some one in the country I came from. (Applause.) If, as I say, independently of the capital that you invest directly in mining, and for which you are endeavouring to have every security and a fair prospect of a return, at the same time there could be a collateral advantage by bringing about, as far as possible, closer trade relations with the Mother-country, it would be a great benefit to you; and if you will look to this at this end I can assure you I will go back to my colony and do what I can at the other end. I think I have now dealt with most of the matters I promised to refer to. There are many other subjects I would like to have spoken of before leaving the Old Country, but as I know you are more directly interested in mining I will reserve anything else I have to say until some future time. In conclusion, I would say that from the time we arrived until the time of our departure we have received at the hands of the British public and at the hands of our country at home every kindness and hospitality. I have found that we are much more closely in touch with the Mother-country than I think any colonial anticipated. I trust this good feeling will ever exist, and if whilst we have been amongst you we have done any little towards or given grounds for increasing the confidence and establishing that respect that is necessary as between the investors in those countries and the people amongst whom the capital is invested, if any doubts have been removed—if our visit has proved successful in that respect—I say that we in the colonies are only too pleased to have had the opportunity afforded us. I trust that all will go on well, and that you in the Mother-country may prosper, as I feel sure you wish those in the colony every prosperity. (Loud applause.)

The Chairman: Before I call upon Mr. Seton-Karr to propose a vote of thanks to Mr. Seddon some gentleman may like to put a question to him arising out of his address. I am sure we shall all like to hear what he has to say, but I will ask any gentleman who rises to bear in mind that it is a business hour of the day, and to be as brief as possible.

Mr. Leader: I should like to ask Mr. Seddon whether he can tell us what prospects there are for the shareholders of the Bank of New Zealand in future?

The Chairman: That is scarcely a question which——

Mr. Leader: Mr. Seddon spoke about the general aspect of affairs over there, and I thought it would be an opportune moment to ask him that question, because we are all interested more or less in New Zealand securities.

Mr. Seddon: Whilst these explanations are being given I think I can answer this question easily enough. (Hear, hear.) When the Government of New Zealand placed the colony behind the Bank of New Zealand to the extent of two millions, at that time every shilling you had in the Bank of New Zealand was gone, and you were liable to have one million of reserve capital called up straight away in addition. Now, what we have done is this: We have so far arranged for the calling-up of that reserve at stated periods. There will be, by legislation, the bank earning the money, a percentage paid on the new capital. The bank has been kept from getting into further difficulties, and whatever the goodwill of the Bank of New Zealand is or was—it was not worth much when we put the Government of the colony behind it—that really is what you have in store for your past money. That is the position.

Mr. Leader: You tell us our capital was lost.

The Chairman: I think we must not go into that.

Mr. W. J. Lavington: Mr. Chairman, the right honourable gentleman, in the address which he has given us, has touched upon a great many matters with regard to mining, and we are all very much obliged to him for doing so, but there is one point which has lately cropped up which I should like his opinion about, and that is with regard to the mining license that is charged to British companies mining in New Zealand. As I understand the matter, New Zealand companies do not pay any license at all, but it has been discovered that because the articles of association of British companies empower them to do something or other beyond mining they are therefore, under the New Zealand mining laws, obliged to pay a mining license amounting to 6d. per cent. on the nominal capital; and beyond that it has lately been decided that it ought to be charged from the time of the incorporation of the company. That is rather a heavy charge on a great many companies, and, considering that those companies, although they have the power to do certain things under the articles of association, do not do them, it seems rather hard that they should have to pay that license. I thought that probably Mr. Seddon might take the matter into consideration and look into it a little more closely on his return, with a view to giving us some little relief from a charge of that sort. There was one other point I wished to mention. Mr. Seddon said the deepest mine in the colony is 600 ft. I may remind him that it is 1,000 ft., and there is a borehole 60 ft. below that, and they are getting gold all the way through. (Applause.)

Mr. Seddon: I ought to have qualified what I said. I meant that was the depth of the last drive from the shaft. I know the shaft you allude to. It is down 1,000 ft. The Government have an interest in it, as they are subsidising it, so I ought to know. Coming to the question the honourable gentleman refers to, as to the license, I may say there is no license charged at all for mining. He has confused the Stamp Act and the payments under the Stamp Act with the charges made for the certificate or license for companies carrying on business other than mining. The charge has nothing whatever to do with the licenses; it is a question of the ordinary Stamp Act. If when you make up your articles of association you confine those articles to mining only you do not pay anything—you do not pay any stamp duty; but if you will take power in your articles of association, when you are framing them, to embrace the growing of beet-root, cotton-spinning, tramway-making, and everything under the sun, you are voluntarily taxing yourselves, because you bring yourselves under the Stamp Act. If you leave them out of your articles of association you do not pay anything at all. The only question now is whether—and this is a fair suggestion to make—if you simply have them in the articles of association and never bring them into play, and if you do nothing else but mining, the Government is prepared to suspend the operation of the Stamp Act in those cases. (Hear, hear.)

Mr. Lavington: That is what I am desirous of bringing forward.

Mr. Seddon: That is the point the gentleman wishes to bring under my notice. There is a difficulty, because one scarcely knows whether you do that. Sometimes you might go into a company and promote something else with your money. You are at this end of the world and we are at the other, and we do not know when you are likely to start or stop. That might cause friction between the Government and the Stamp Department. Perhaps the best thing will be to review the whole situation, and see whether you could not in your articles of association start primarily for mining, with a latent power to invest in other industries, on notice being given that from that date forward you will annually pay the stamp duty. I will look into the matter, and see what my colleagues say on the subject. (Hear, hear.)

Mr. Lavington: I am much obliged to you, sir.

The Chairman: If there are no other remarks bearing on the address, and no more questions to be asked, I will call upon Mr. Seton-Karr, M.P., to propose a vote of thanks.

Mr. Seton-Karr, M.P.: I can assure you that it is with the greatest pleasure that I rise to propose a hearty vote of thanks to Mr. Seddon, not only for his presence here to-day, but also, if I may say so, for the extremely able, clear, and lucid address with which he has favoured us. When the card was sent to me for this meeting I certainly confess the thought crossed my mind, How can the Prime Minister of any colony know very much about practical mining? But Mr. Seddon has most clearly solved the problem, and he has told us—and I am sure we all listened to the statement with the greatest interest—that he has worked his way up to the Premiership of New Zealand through the stages of practical gold-mining, and then for many years as Minister of Mines. (Applause.) I think the address which Mr. Seddon has given us to-day is well calculated to establish confidence in our minds with regard to the mining industry in New Zealand. I am sorry to say I am not interested in any New Zealand gold-mines, and after listening to Mr. Seddon's address that regret has been intensified. He has told us the gold is there, that a low yield of 5 dwt. to 10 dwt. will pay, and that the surface has only just been scratched. I think that is all very satisfactory. But there was one part of his address that I listened to with the very greatest interest and pleasure, and that was his statement—and I think I am echoing your feelings when I say this—as to the policy of the Government in respect to mining rights and legislation, and I am glad to think we have that statement from such a high authority, the highest political authority in New Zealand that we could have it from. He has told us—and what I liked so much was not so much the distinct details he gave us, but the spirit in which he spoke on the subject—that the policy of the New Zealand Government is for an equitable, fair, and straightforward distribution of rights as between owner and prospector, and that no man shall risk his labour or money without, so far as the Government of New Zealand are concerned, their doing their best to see that he gets a fair, equitable, and proper return for it. Gentlemen, that is satisfactory, and we ought to be very much obliged to Mr. Seddon for the clear and straightforward account he gave us of the policy of the Government in that respect. There was one remark he made which I will confess not only surprised me, but also deeply interested me. He told us that strikes in New Zealand were impossible. I frankly say I regret on that ground that Mr. Seddon is not Prime Minister of this country. (Laughter.) I wish we could bring him and his policy over here and make strikes impossible in this country. At all events, it is satisfactory to us to know that the New Zealand Government take such a businesslike view of the question of strikes, and are not only prepared to make, but have made, such legislative arrangements as to render strikes impossible. Gentlemen, it is not my intention to detain you long, but I would like to say one other word before sitting down. I have particular pleasure in proposing this vote of thanks to the Prime Minister of New Zealand, because, as it happens, Mr. Seddon is a Lancashire man, born and bred, and he happens to come from the constituency which I have the honour to represent in the British House of Commons, and I think we must have seen for ourselves to-day, in listening to Mr. Seddon, that the secret of his success is that he possesses that strength of character, that determination, and that ability which, I venture to think, are found nowhere in better quality than in the County of Lancashire. (Laughter.) I am bound to stick up for the county with which I am connected. (Renewed laughter.) There are, of course, a great many other distinguished counties in this country. But, at all events, Mr. Seddon, I believe, possesses that dogged Lancashire perseverance and that strength of character and ability which has landed him in the position he occupies to-day, and I can only say on that account, representing as I do the constituency from which he came, that I am glad indeed to be privileged to move the vote of thanks on this occasion. If Mr. Seddon had stayed in Lancashire he would now have been Mayor of St. Helen's, and probably M.P. for the borough, but fortune has reserved to him a higher destiny. He occupies a proud position in one of our great colonies. As I think he has impressed upon our minds to-day, he is Premier of a colony which is certainly not least in its enterprise, industry, and resources, and in the character of its population. I am sure we are all glad to have had the privilege of listening to him to-day; and as I sit down I will only remind you that there is a wider view of this function than we have been privileged to take part in on this occasion—namely, that we have heard the Premier of a great British colony addressing business-men in the City of London. It means another additional tie between the colonies and ourselves, another slight additional development of our Imperial strength. It brings together the people of that colony and the people of the City of London, and I feel that in this Jubilee year we appreciate this highly. It has been a very great pleasure to us all to listen to Mr. Seddon, and to do what we can to entertain him and the other colonial Premiers who have been in this country. I hope the remarks he made in the concluding portion of his address on the important subject of British trade and the very wholesome sentiment he expressed, that he would rather buy British produce than anything else, will be very much impressed upon our minds. I move a cordial vote of thanks to Mr. Seddon for his presence and address to-day. (Applause.)

Mr. Harman: I have very much pleasure, gentlemen, in seconding the vote of thanks to Mr. Seddon for the very eloquent address he has given us to-day. I am sure we all hope that we may find the links between England and this colony strengthened by such addresses as we have just heard. Gentlemen, I am very happy to second this vote of thanks.

The Chairman: In putting that to the meeting, perhaps I may express the hope that Mr. Seddon's visit will not merely have redounded, as it has done, to his credit as a statesman, but that his health will not have been affected permanently by the over-kindness, as he has put it himself, which he has received on more than one occasion. I am sure you will allow me to add this as a rider to the vote of thanks, that as this meeting is one of the last that Mr. Seddon will attend, we hope it will have been one of the most pleasant and most profitable to him, as I am sure it will be to us. (Applause.)

The motion was then put, and carried with acclamation, both hands being held up in its favour by all present.

Mr. Seddon: I thank very heartily, indeed, the mover and seconder of this vote of thanks for their kind words. I wish to say that I hoped to establish a confidence here, and let you feel that in dealing with the people of our colony and in dealing with myself and my Government you are dealing with those whom you can trust, and that we are desirous of promoting the permanent welfare of the colony, not of keeping capital from our country, but of seeing that capital led into legitimate channels. That is what we want done. I may say with regard to the working-men in our colony and the employers, I never knew so good a feeling exist as exists to-day. There is no trouble or friction whatever, and such a thing as strife or strikes you never hear mentioned. That, I say, ought to impress itself upon those who have to deal with this very great question, because wherever there is danger of friction—whether it is in the Motherland or in her colonies—it simply means that trade is driven from the country, and it never comes back. That is what I want to impress upon those who have to deal with this question. There are those who send us the capital, and those working there, who know they must depend on the capital—though, of course, they give it life—and they are sensible and know that they have to do their part and that there must be a fair division, or otherwise there is bound to be loss. That is the feeling with which we deal with the question at the present time. I want to say this also, that we have no prejudices of any sort. English, Irish, Scotch, Welsh, and men of every nation are all there working away for the good of the Mother-country and our country, and for the benefit of our fellow-men. (Applause.)

The Hon. W. P. Reeves, Agent-General for New Zealand: Gentlemen, before you leave the hall kindly grant me one moment. I shall not make a speech to you, but I have something to say. I am going to ask you to pass a hearty vote of thanks to Mr Lowles, M.P., for his kindness in coming here to take the chair on this occasion. I need not support the motion by any argument, because you all know Mr. Lowles, and I am sure you are all thankful to him, as we of New Zealand are, for kindly giving us his genial presence at this meeting. But before I sit down, as I said, I have something to tell you. Mr. Seddon has in a most clear and business-like manner given the reasons why those who, in a legitimate and *boná fide* way, invest their capital in gold-mines in New Zealand have nothing to fear from any unfair interference or hindrance. Mr. Seddon must for many years have entertained very strong personal objections to anything that could possibly be called jumping, because, let me tell you, there is a household story in New Zealand that many years ago Mr. Seddon, when he was a working miner, once invested his labour and what capital he had in a gold-mining claim, and when an aggresssive and venturesome individual endeavoured on that occasion to play the part of a jumper—Mr. Seddon was younger then than he is now—did not appeal to any tribunal, he did not fall back on the common law, he did not make an eloquent speech of any duration whatever, he resorted to primitive methods, and he so dealt with the would-be jumper that no one has ever attempted to jump a claim of his again. (Laughter and applause.) So I think you will understand why the Premier of New Zealand, from the very bottom of his soul, loathes and detests any interference with the legitimate investment of labour and capital in the gold-mines of his colony. The Government of New Zealand can point to a clear and stainless record of thirty-five years duration, during which no genuine investor in gold-mining in New Zealand has ever had occasion to complain of unfair treatment from the State or the State officers. For the rest, Mr. Seddon is going away; but although his presence will be lost to you, and although I must here admit that I am totally unworthy to fill his shoes, he will leave behind him an agent and an agent's staff here, and you will allow me to say, speaking both to you and the institution which has been the cause of our meeting together to-day, that the *bonâ fide* investor and the *bonâ fide* seeker for information will find in my staff and in my humble self steadfast allies and helpers. I now beg to propose a hearty vote of thanks to Mr. Lowles for presiding.

Mr. Cecil Hartridge: As a director of the only under-capitalised New Zealand mine—(laughter)—I am not going to say anything more than this, that with a capital of £40,000 the shareholders have had over £200,000 worth of dividends in two years. (Applause.) I have very great pleasure in seconding the vote of thanks.

The Chairman: Mr. Reeves, Mr. Hartridge, and gentlemen—I am very much obliged to you for this vote of thanks. I feel very much that the compliment paid to a clerical friend of mine would almost serve in this instance. He went to preach at a poor mission hall in the East-end of London as a substitute for another clerical gentleman. He was met by a voluble individual who offered this apology: "I am sorry to bring you to such a poor congregation and a poor place. A worse gentleman would have done if we could have found him." (Loud laughter.) But I am sure you intended this as a compliment. Now, gentlemen, might I mix a little sentiment with business? It is almost the last meeting Mr. Seddon will attend before leaving our midst. In the colonies—in Canada and Australasia—when I have visited them, we have shown our love for the mother country and each other by singing a verse of "God Save the Queen." Are we sentimental enough to do that on this occasion, just as a send-off to Mr. Seddon?

The Chairman's request was immediately responded to, the audience rising in a body and singing the first verse of the National Anthem with great heartiness. Cheers were then given for the Queen, led by Mr. Seddon, and the proceedings terminated.

In a review of the New Zealand Court at the Queensland Industrial Exhibition the *Queenslander*, after praising the general arrangement of the exhibits, said that "the New Zealand timbers call for special commendation. Great ingenuity has been displayed in bringing the varieties under notice, especially in the manufacture of picture-frames, in which twenty-nine kinds of wood are shown. The greatest piece of mechanical ingenuity, however, is the exhibit of a mantelpiece and overmantel, into which are worked no fewer than 1,800 pieces of timber, including thirteen specimens of puriri, totara knot, totara burr, black maire, mottled silver pine, pukatea, honeysuckle, rimu, totara, mottled kauri, towai, wavy kauri, and akeake. A drawing accompanies this exhibit, showing by means of distinctive colours the class of timber of which every portion is made. New Zealand has just cause to pride herself on the value and quality of her indigenous timbers, and a large trophy shown is one of the attractions of the court. It is in the form of an obelisk constructed in bands of various timbers, each representing one year, indicating to a vertical scale of £20,000 to an inch the value of the colony's timber export trade for each year from 1880 to 1895 inclusive, as well as the progressive values, which are marked off in gilt figures at each £100,000. The New Zealand Commissioner informs us that the timber exported in 1895 was valued at £141,892. In glass cases are shown thirty-two varieties of wood in rough blocks, also some planed and polished, to which are attached full details of value, name, and quality. The model wooden truss-bridge is shown to a scale of 1 in. to 1 ft., and represents a standard 80 ft. span as used on the New Zealand railways."

The celebrated Mount Morgan Mine, in Queensland, has produced 1,631,981 oz. of gold, valued at £6,712,186, and paid dividends to the amount of £4,400,000 since the company was formed in July, 1886. The Royal Commission report that gold has been found in various formations which the ordinary miner would never imagine to be gold-bearing. The cost of chlorination has been reduced from £2 8s. 2d. per ton in 1892 to 15s. 7d. per ton in 1897, this saving being the result of the erection of newer and more complete works, and the consequent saving in the handling and treatment of the ores.

Queensland has an area of 427,838,080 acres, and the Royal Commission on Mining states that the area of the gold and mineral fields is 40,611,840, while the area held under gold-mining leases (exclusive of ground held as claims or prospecting areas) is only 5,324 acres. The total amount of gold produced is set down at 11,198,990 oz., valued at £3 10s. per oz. = £39,196,465. There were 12,806 miners in the colony in 1896, and the gold produced was 640,385 oz., giving a value per miner of £216 5s. 3d.

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NOTES AND COMMENTS.

THE total quantity of gold exported from New Zealand for the month of September was 14,279 oz., valued at £56,106, and 15,570 oz. of silver (from Auckland), valued at £1,833. The following are the exports from the different ports for the month and quarter:—

Month of September, 1897.			Quarter ending September 30, 1897.		
District.	Quantity.	Value.	District.	Quantity.	Value.
	Oz.	£		Oz.	£
Auckland ..	10,494	40,965	Auckland ..	25,403	93,164
Westport ..	591	2,366	Nelson ..	652	2,414
Greymouth ..	1,453	5,811	Westport ..	1,823	7,297
Invercargill ..	1,741	6,964	Greymouth ..	10,523	42,097
			Hokitika ..	4,907	19,524
			Dunedin ..	12,293	49,771
			Invercargill ..	4,619	18,476
Total ..	14,279	56,106	Total ..	60,220	232,743

These figures do not, however, represent the quantity of gold obtained, for it is well known that some of the dredges in Otago have been lately getting exceptionally rich returns; yet the total export of gold from Dunedin for the past two months has been only 629 oz., valued at £2,517. During the month of August nearly 2,000 oz. of gold was obtained by thirteen dredges, and during September the returns from a dozen dredges made a total of 1,348 oz. Then there are some of the large alluvial claims, such as the Blue Spur and Gabriel's Gully Consolidated, the Roxburgh Amalgamated Sluicing Company, and others, which have obtained large returns, the yield from the Roxburgh Amalgamated for August being 107 oz., and for September 169 oz. 14 dwt., while the Blue Spur Consolidated had 799 oz. for the second quarter of their financial year.

THE Bill introduced by the Hon. the Minister of Mines for the consolidation of the various Mining Acts has been widely circulated, and before its provisions are discussed in Parliament the mining community will have had ample time for suggesting improvements in the measure, which is intended not only to consolidate the existing mining laws, but to give effect to the recommendations made by the Conference of Wardens which recently sat in Wellington to discuss the Bill and render it more workable. Some important alterations have been made in respect of races and other mining privileges in respect of water, with the view of conserving the public interests. It is interesting to note, in this connection, that in a discussion which took place in the Auckland Chamber of Mines, Mr. H. A. Gordon and other speakers took exception to that portion of the Bill; and while admitting that the provisions might be suitable to the requirements of Otago, where water is generally scarce, it was not thought that they would be applicable to the goldfields on the Cape Colville Peninsula, where, as a rule, an abundant supply of water is obtainable. The Consolidation Bill contains 300 clauses, extending over more than 100 pages.

THE Bill to prevent the unnecessary employment of manual labour in mines on Sundays, introduced by the Right Hon. the Premier, provides that, except in cases where the previous authority in writing of an Inspector of Mines has been obtained, it shall not be lawful for any person or company to directly or indirectly employ any workmen on Sunday for hire or reward to do any skilled or unskilled labour in or about any mine within the meaning of "The Mining Act, 1891," or "The Coal Mines Act, 1891"; and the Inspector of Mines shall not give any such authority except in cases where he is satisfied that the labour cannot be suspended on Sunday without risk of injury to the mine or its operations, and when giving such authority he shall in each case specify the number of workmen that may be employed and the nature of their employment. If any workman is employed in breach of the Act, the person or company employing him, and also, where the employer is a company, the mine-manager and every director thereof, shall be severally liable to a penalty not exceeding £1: provided that it shall be a sufficient defence if the defendant satisfies the Court that the employment was rendered necessary by reason of breakage or other special emergency involving danger to life or damage to property. Nothing in the Bill shall be construed to affect the operations of section 16 of "The Police Offences Act, 1894": provided that no person shall be punished twice for the same offence.

The annual Mines Statement, laid on the table of the House by the Hon. the Minister of Mines on the 29th September, deals with the mineral production of the colony, gold-mining, quartz-working, alluvial mining, dredging, coal-mining, metalliferous mining, opal, petroleum, kauri-gum, roads and tracks through goldfields, water-races and conservation, geological exploration of Cape Colville, improved mining machinery and processes, schools of mines, expenditure on works authorised by the department for the development of the mining industry, Kauri Company's lands, over-capitalisation of mining properties, earnings of gold- and coal-miners, &c. In conclusion, the Hon. Mr. Cadman stated that "the number of special claims now taken up for quartz and alluvial mining in both new and previously-worked ground, and the attention devoted to prospecting, gives hope for believing that additional explorations within auriferous areas will result in the discovery of quartz-reefs and of alluvial gravel deposits containing gold in such quantities as will enable them to be profitably worked. The stream of capital for mining investment that first set in in the northern districts is being directed to the Middle Island, and, without being over-sanguine, I think it can be reasonably expected that the interest taken in mining throughout New Zealand will continue to increase, that many new mines will be discovered, and that our mineral resources will be developed in such a manner as to insure steady yields from the mines, with highly profitable returns for shareholders."

The report on the Goldfields of New Zealand for the year 1896-97, by Mr. George Wilson, Inspecting Engineer, has been laid on the table of the House, and will shortly be ready for distribution. It comprises 237 pages, and in addition to the information which it contains about the various goldfields and mines of the colony, an abstract is given of licenses for special claims for quartz-mines and dredging-claims issued from all the Warden's offices and registered up to the 31st March, 1897, and should prove very handy for reference. Maps of the North and Middle Islands showing the different mining districts, and a coloured map of a portion of the Hauraki Mining District, showing the areas granted in special claims in Te Aroha, Ohinemuri, Thames, and Coromandel Counties, accompany the report, the boundaries of the counties being also defined. The illustrations include: Rotary Ore-drier, Kapai-Vermont, Kuaotunu; 10 ft. Pelton Wheel, New Zealand Crown Mines, Karangahake; Hydraulic Sluicing Plant, Blue Spur Consolidated, Tuapeka; and New Current Motor. Drawings in connection with the following patents for improvements in gold-saving processes and machinery are given: Machine for use in extraction of Gold (Deeble); Regenerative Process for treatment of Argentiferous Sulphide Ores (Turner); Process for treatment of Metalliferous Ores (Ashcroft); Dredge (Poll); Concentrating and Amalgamating Machine (Robinson); Mechanical Ore Separator (Carter); Ore Crusher (Hughes); Pulverising Mill (Young); Stamping Apparatus (Morrison).

An appeal from the decision of the Warden came before Mr. Justice Conolly in Auckland on the 24th ultimo. The case was one in which the appellant (Mr. Albert Cuff, mining agent, Auckland), was sued by the respondent (Mr. James Jordan, Receiver of Gold Revenue, Thames) for the sum of £25, being rent of special claim of 100 acres, at the rate of £50 per annum, payable half-yearly in advance on the 20th August and 20th February respectively. On the 19th May, 1897, the defendant tendered £12 10s. as a surrender of the claim, but Mr. Warden Bush held that the licensee was liable for the full £25, and gave judgment accordingly. Mr. Cotter, who appeared for the appellant, stated that it was a friendly suit, the intention being to obtain a declaration as to the meaning of the words in section 135 of "The Mining Act, 1891." Counsel quoted section 71, subsection (4), and contended that it was clearly the intention of the Legislature that, if a person chose to surrender any portion of his claim, from the moment of that surrender the rent was abated proportionately. That would assist them in the interpretation of section 135, which said any person holding a license should be entitled at any time to surrender the same on condition that all arrears of rent due up to the date of surrender were paid. Mr. Tole, who appeared for respondent, pointed out that section 71 did not say the rent must not start from the due date: it simply said the rent should be proportionately reduced, but did not say from what time. Counsel submitted it must be from the time that the rent commenced to run again: section 135 said the licensee was entitled to surrender "under the provisions hereinbefore contained," on condition that all arrears were paid. His Honour said that Mr. Cotter's contention was an exceedingly ingenious one, but he did not adopt the views that counsel took in this matter. It seemed to him that section 135 was beyond doubt in its meaning. Mr. Cotter had very rightly contended that in reading an Act, if possible, application should be given to all the words. Now, the right to surrender in section

135 was upon condition that all the arrears of rent due up to the date of surrender were paid, and if effect were given to all the words, his Honour had to read all those words, "all arrears of rent due up to the date of surrender." The date of surrender in that case was May, 1897. What arrears of rent were due up to that date? Surely the rent which was due on the 20th February. From the 20th February the rent of £25 was in arrear, and therefore, before the surrender could take effect, that would have to be paid, and that was what the Warden had found. His Honour thought the judgment of the Court below must be confirmed, and the appeal dismissed. Mr. Justice Conolly's decision will tend to set at rest a much-disputed point. It is understood that the appeal was a combined one on the part of several legal managers who took the same view of the matter as Mr. Cuff did.

Four licenses have been granted to prospect for minerals in the Wakarara Survey District, Hawke's Bay.

The approximate quantity of ore taken from the open cut on the Martha Hill, Waihi (an illustration of which is given in this issue), is 21,000 tons.

The Mining Companies Act Amendment Bill provides that every company or corporation duly registered or incorporated elsewhere than in New Zealand, and formed for mining purposes within the meaning of "The Mining Companies Act, 1894," or "The Mining Act, 1891," shall be deemed to be a foreign company within the meaning of "The Foreign Companies Act, 1884," and that such company shall at all times make adequate provision for the registration in New Zealand of transfers of its shares, and for the execution and issue in the colony of scrip certificates or other documents of title in respect of such shares, and shall keep at the registered office in New Zealand a colonial register wherein shall be entered the name, address, and occupation of every shareholder who makes application in writing to be registered therein; and shall appoint an attorney in New Zealand to register transfers of shares entered in the colonial register, and make transfers from the colonial to the foreign register, and, generally, from one register to the other: provided that it shall not be lawful for any shareholder to be entered on both the colonial and foreign registers at the same time in respect of the same shares, a reasonable time (not exceeding four months) to elapse between the application being made and the entry or removal being effected. Every such company shall, within three months after any report or balance-sheet is submitted to any meeting of its shareholders held out of New Zealand, file in its registered office in the colony a true copy of such report or balance-sheet, and shall permit the same to be inspected at all reasonable times by a shareholder in New Zealand without fee under a penalty not exceeding £5 per day for every day during which default continues; and if such default continues for the space of three months the company shall be incapable thereafter of carrying on business in New Zealand. As to sale of forfeited shares in other than no-liability companies, the Bill provides that in lieu of the provisions of the last paragraph of section 57, and the first paragraph of section 59 of "The Mining Companies Act, 1894," relating to the sale of forfeited shares, the holder must be notified within seven days of such forfeiture and of the time and place of the intended sale, such notice to be sent by registered letter to the address appearing in the register; every forfeited share to be offered for sale by public auction, without reserve, not earlier than twenty-eight nor more than forty-two days after the forfeiture; the date and place of auction to be advertised not less than seven nor more than fourteen days before such date in a newspaper circulating in the locality where the registered office of the company is situated, or its mining operations are carried on. With respect to no-liability companies, it is proposed to repeal subsection (5) of section 130 of the principal Act ("The Companies Act, 1894"), and in lieu thereof provision is made for the absolute forfeiture, without any resolution of the directors or other proceeding, of any shares upon which a call remains unpaid at the expiration of fourteen days after the date for its payment, such shares to be sold by public auction, provision being made for registered notice being sent to the address of the holder of such shares and for advertising in the same manner as already stated, under a penalty not exceeding £10; but it is provided that if at auction the forfeited shares cannot be sold for a sum sufficient to pay the unpaid call the directors may in their discretion withdraw them from sale, every forfeited share which is so withdrawn from sale, or for which there is no bid, to be forthwith registered in the name of the company, and until reissued shall be the property of the company. If the shares are sold at auction, the proceeds to be applied in or towards payment of the unpaid call and expenses of advertising and sale, the surplus, if any, to be paid to the person owning the shares at the time of forfeiture upon his delivering up to the company the scrip certificate in respect of such shares. In every case where a debt is incurred by a no-liability company, the directors by whose authority such debt was incurred shall jointly and severally be personally responsible for the payment thereof: provided that no director shall be liable in respect of any debt which he proves was incurred without his knowledge, or if with his knowledge, then without his consent and in spite of his protest made in writing at the time. It shall be the duty of every company, within three months after the coming into operation of the Act, to issue to every shareholder scrip certificates in respect of his shares. It shall not be lawful for any company to transfer any shares unless the scrip certificates in respect thereof are lodged in the registered office of the company before the transfer is registered, and no fee shall be payable in respect of any scrip certificate issued originally or pursuant to any transfer. If default is made in complying with any of the provisions of this section (7), every director, secretary, and manager shall be liable to a penalty not exceeding £5, and in the case of a continuing default to a penalty not exceeding £5 for every day after the first during which such default continues. In section 32 of the principal Act (providing that a printed copy of half-yearly statements shall be lodged with the Registrar) the word "printed" is repealed. In the case of the winding-up of a company, when the liquidator is the Deputy Official Assignee, he shall be entitled to such remuneration, out of moneys to be appropriated by Parliament, as the Governor in Council may direct. The Governor may from time to time make such regulations as he deems necessary for the purpose of giving fuller effect to any of the purposes or provisions of the principal Act or any amendment thereof, and by such regulations may impose any penalty not exceeding £5 in respect of any breach thereof, and may alter the form of the fourth schedule to the principal Act (relating to statements of affairs of companies), and may prescribe special forms of statements to be made in respect of the affairs of foreign companies, every such alteration to be deemed to be included in the said fourth schedule, the provisions of section 36 of the principal Act to apply accordingly.

In accordance with the agreement entered into between the Government and the Cassel Gold Extracting Company (Limited), and published in the last issue of the *New Zealand Mines Record*, a Bill has been introduced to give effect to it by the Hon. the Minister of Mines, intituled, "An Act to assist the development of low-grade ores, and otherwise promote the mining industry, by acquiring certain patent and other rights relating to the extraction of gold and silver by what is commonly known as the Cyanide Process, and making that process available on the goldfields at reasonable rates of royalty." The Bill provides for the purchase of the patent rights for any sum not exceeding £15,000. One month after the passing of the Act it shall not be lawful for any person to directly or indirectly use or employ the said patent rights or any of them, or any process wherein cyanide of potassium, or any compound of cyanogen in any form, combination, or strength whatsoever is employed as a solvent, unless he is the holder of a license under the Act, a proviso being inserted in regard to the use of the patent by the Waihi, Waitekauri, Union Waihi, and New Zealand Crown Mines Companies, which had acquired prior rights from the company. Licenses are to be issued by the Warden nearest to which is situate the mine wherein the licensee proposes to use the patent rights or processes; and the licensee shall, after the 20th August, 1897, pay such royalty as is prescribed, being not less than one-fortieth nor more than one-twentieth of the total value of the gold and silver, a proviso being made in respect to any person who has paid or agreed to pay to the company any royalty or other charge for any period subsequent to that date, in which case he shall be entitled to claim the benefit of such payment, and the company shall be liable for any deficiency thereby arising. The royalty may be prescribed on a graduated scale, according to the value of the gold and silver produced from each ton of quartz or other ore, and shall in every case be payable at prescribed periods to the Receiver of Gold-Revenue for the mining district wherein the license was issued. Every license shall be deemed to be issued subject to such terms and conditions as are prescribed. If any person commits a breach of section 8 (which provides that it shall not be lawful to make use of the patent rights, or any process wherein cyanide of potassium, or any compound of cyanogen in any form is employed as a solvent, unless he is the holder of a license), he shall be liable to a penalty not exceeding £10 for every day during which such breach continues, and also to an additional penalty of twice the amount that would have been payable in respect of royalty if he had duly complied with that section by obtaining a license; and for the purposes of such additional penalty an estimate by an Inspector of Mines shall be sufficient evidence of the amount of such royalty until the contrary is proved. All moneys, including the expenses incurred in administering the Act, and also the Attorney-General's costs of and incident to the proceedings referred to in the agreement, shall be paid out of the Consolidated Fund; and all moneys received in respect of royalties, penalties, and otherwise under the Act shall be paid into the Public Account and form part of the Consolidated Fund. Within ten days after the close of each financial year, or, if not, then within seven days after the commencement of the first ensuing session of Parliament, a statement shall be prepared showing all moneys so received and paid during the year. The Governor may from time to time make such regulations as he deems necessary in order to give full effect to anything which by the Act is expressed to be prescribed, or to otherwise carry out the purposes of the Act, and by such regulations he may impose a penalty not exceeding £10 for any breach thereof. The final section (18) provides that as soon as the total of the moneys received and paid into the Consolidated Fund is equal in amount to the total of the moneys paid under the Act out of the Consolidated Fund, the Colonial Treasurer shall certify the fact to the Governor, who shall notify the same in the *Gazette;* and on and after the date of such gazetting, sections 8 to 14 (providing for the payment of royalties and penalties to Her Majesty) shall cease to be in operation, nevertheless without affecting any liability for royalties owing or penalties incurred under the Act prior to such date. The memorandum of agreement made between the Cassel Gold-extracting Company and the Hon. the Minister of Mines for the sale and purchase of the patent rights is given in a schedule to the Bill.

THERE was an increase of 66,197 tons in the output of coal in New Zealand for the past year as compared with the corresponding period in 1895, while the importations showed a decrease of 6,442 tons. The figures are :—

	Tons.
Total output for year 1895	726,654
〃 1896	792,851
Total imports of coal 1895	108,198
〃 1896	101,756
Total quantity of coal exported, 1896 ..	86,280

The output of the different classes of coal is shown under the following heads :—

	Number of Tons.	Increase. Tons.
Bituminous	473,637	43,656
Pitch	110,547	5,981
Brown	179,744	13,047
Lignite	28,923	3,513

Kawakawa and Hikurangi showed the largest increase, this being mainly due to the steady output from the Hikurangi Coal Company's mine. The Westport collieries increased their output by 39,553 tons, Otago by 11,483 tons, Waikato by 6,341 tons, and Southland by 4,285 tons. In the other coal-mining districts there was a falling-off, Greymouth being the most notable with 4,744 tons. Coalbrookdale heads the list with the largest output, the Brunner comes next, and the Kaitangata third. The following table supplies particulars of the total outputs for the year 1896 from the principal mines in the colony :—

Name of Mine.	Locality.	Quality.	Tons.
Coalbrookdale ..	Westport ..	Bituminous ..	190,975
Brunner	Greymouth ..	〃 ..	92,118
Kaitangata ..	Kaitangata ..	Pitch	72,536
Blackball	Greymouth ..	Bituminous ..	45,772
Westport-Cardiff ..	Westport ..	〃 ..	40,431
Taupiri Extended ..	Waikato ..	Brown	28,988
Hikurangi ..	Hikurangi ..	Semi-bituminous	27,980
Shag Point ..	Shag Point ..	Brown	21,097
Granity Creek ..	Westport ..	Bituminous ..	20,543
Ngunguru ..	Ngunguru ..	Semi-bituminous	20,233
Taupiri Reserve ..	Waikato ..	Brown	18,660
Nightcaps ..	Nightcaps ..	Pitch	16,905
Walton Park ..	Walton Park	Brown	16,612
Waikato	Waikato ..	〃 ..	14,233
New Bay of Islands	Kawakawa ..	Semi-bituminous	13,967
Castle Hill ..	Kaitangata ..	Pitch	12,825
Allandale ..	Shag Point ..	Brown	11,455

A large number of smaller mines are worked, principally in Otago and Southland, and supply fuel for local requirements, but the total product from these pits was only between 9,000 and 10,000 tons. There were nearly 2,000 miners employed, and their average earnings were about £2 4s. a week per man.

KAURI-GUM forms a very important item in the exports from New Zealand. Last year there were 7,126 tons exported, the value of which was estimated at £431,323, or an average of £60 10s. 6d. per ton. In 1895 the export was 7,425 tons, value £418,766, or an average of £56 8s. per ton. The total quantity exported from 1853 (when 830 tons were shipped, the value being £15,972), up to 31st December, 1896, was 183,929½ tons, valued at £8,114,852.

THE Big Kapitea Creek is to be added to the list of rivers and creeks which the Government intend to proclaim watercourses for the deposit of tailings, &c., on the West Coast. The area which is to be proclaimed is defined as commencing on the northern boundary of the Kumara Reservoir Reserve, and flows in a north-westerly direction for a distance of nine miles into the ocean; and its several tributaries thereof.

AT the Town Hall, Hokitika, during the visit of the Hon. the Minister of Mines to the West Coast, Mr. J. Bevan, ex-M.H.R., is reported to have said, according to the *West Coast Times*' report: "This place is a remarkable basin of gold, with evidences of immense wealth in all directions. The Rimu Goldfield is of enormous area, and capable of supporting a very large population. At Ross the Cassius' claim yielded £20,000 worth of gold in fifteen months out of a little piece of ground not an eighth of an acre in extent. Incompetence and ignorance had caused the closing of that mine, which has now been idle for twenty-three years. . . . The field across the river is one of the richest in the colony. A claim I knew on a deep level had wash 5 ft. thick, which went 5 dwt., 8 dwt., and 9 dwt. to the load. In another claim 45 oz. has recently been obtained from one load. In another case five men got 95 oz. in five weeks. . . We have in this district an area 200 miles long teeming with gold."

The yield of cyanide gold at Charters Towers, Queensland, last year was 21,461 oz. Cyanide plants are noticeable all over the field, and according to the report of the Royal Commission "they seem to be utilising and making marketable products of the mills, which only a few years ago seemed to be waste rubbish." At Ravenswood, in North Queensland, the John Bull Company have erected a cyanide plant in addition to their crushing plant, and are clearing working-expenses from low-grade ore yielding 5 dwt. to the ton.

In the introductory portion of his presidential address to the New Zealand Institute of Mining Engineers Mr. Gordon (late Inspecting Engineer, Mines Department) drew attention to the fact that the mining industry may be said to be only in its infancy in New Zealand, yet it is, at the present time, the means of supporting a population of 80,485, or about one-ninth of the population of the colony. "You may think this assertion not warranted," he went on to say, "but from my experience in visiting every field in the colony, and taking the different people depending on a livelihood, for every adult that is actually engaged in carrying on mining operations there are at least four others depending on him for support, that is, taking those who have families and the people engaged in supplying timber, machinery, and goods to those actually employed in mines. At present there are about 14,297 men employed in gold-mines, and 1,800 men in coal-mines, making a total of 16,097, which, if multiplied by five, gives a population of 80,485 depending for a livelihood on this industry. I may state these are figures that I have obtained through the Under-Secretary of the Mines Department from the statistics compiled from the Annual Report. You will, therefore, see that, in comparison with our population, the mining industry forms a great factor in the wealth of the colony. It must also be remembered that where mining operations are chiefly carried on the land, in many instances, is unsuitable for agricultural, or even pastoral pursuits. Mining is an industry which was looked on by many in the past, and even by some of our legislators, as a system of gambling, deserving but little consideration at the hands of the Government. The objection always brought forward is that it is not conducted on a commercial basis. Now we hope, by means of bringing science to bear more on the systems of working the mines and in the economical treatment of ores, to dispel that illusion, and to show that we not only have a good field for the investment of capital in mining ventures, but that we are also capable of conducting mining operations and bringing them to a successful issue."

In reference to the demand so frequently made, that the Mines Department should accept surrenders of special claims and licensed holdings without insisting on the payment of rents due, the *Auckland Star* remarks: "It is perfectly useless for lessees to suppose that the Government or the Warden can allow any person to lock up mining land belonging to the public against anybody else, without either developing it or paying rent. This is practically what is being demanded in many cases, and if the Minister of Mines were pliable enough to yield to the pressure from lessees, which we are confident he never will be, public opinion on the goldfields would not tolerate a system of monopoly and jobbery so disastrous to the best interests of the gold-mining industry in New Zealand."

The British Columbia *Mining Record* for June (Jubilee number) draws attention to the fact that "the mining companies in British Columbia, with a few exceptions, do not desire to make known to the public the real condition of their affairs. Most of the companies appear to be more concerned about devising schemes to sell their shares than in the actual development of the mines. It would throw a curious light on the subject if a statement of the total amount invested in mining shares could be compiled and compared with the actual amount expended in developing the properties. There would be a large balance to be accounted for, which, no doubt, the promoters of companies could explain. The explanation would be that it represented their profit. . . . The more capital interests itself in the actual development of our mines, and less in playing into the hands of mere company promoters and speculators, the better it will be for it and British Columbia generally. . . . . What English investors have to guard against is the placing of British Columbia mining properties on the market at fictitious or exaggerated values. Schemers will endeavour to float companies in England on representations which cannot be verified on this side. This has already been done, and to guard against it all that English investors have to do is to investigate fully for themselves before risking their money."

Miners in British Columbia have to pay five dollars per annum. This is condemned by the *Mining Record*, which combats the argument put forth that "because some of these miners are birds of passage, working only a limited time in the mines, to go across the line when it suited them, they should while here be made to pay something towards the maintenance of the province," and contends that they should be as free to work as carpenters, masons, or blacksmiths, while "it is quite right that prospectors and parties interested in claims should pay a license fee." These are facts for those who are in the habit of drawing invidious comparisons between New Zealand and British Columbia.

At the first meeting of the New Zealand Institute of Mining Engineers, held in Auckland on the 12th July, Mr. Henry A. Gordon, the president, stated that forty-nine members, twenty-three associates, five honorary members, and one student had been elected, making a total of seventy-eight. He went on to explain that "members are to be those who had had considerable practical experience in conducting mining or metallurgical operations. Honorary members will be men of culture and high scientific attainments who, from their position, are enabled to render assistance and advice in connection with mining, metallurgy, or mechanical engineering. The class of associates will include men who have had a comparatively limited practical experience in the actual working of mines, but who may at any time, on proof being given of their engineering ability, be transferred into the class of members; while students are those who may be studying at the school of mines, or under articles to a mining engineer, with a view to adopting mining engineering as their profession. The honorary members who have been elected are the Hon. A. J. Cadman, Minister of Mines, a gentleman with whom most of you are well acquainted, and who is also conversant with the practical working of mines; Sir James Hector, a gentleman who is a high authority on almost every branch of science; Professor Ulrich, of the Otago University, a distinguished geologist, and one of the highest authorities on mineralogy in the Southern Hemisphere; and Mr. A. McKay, the Government Geologist, a gentleman who may be said to be similar in many respects to one of the fathers of geology—namely, Hugh Miller,—and who may be classed as the best authority we have on the geology of New Zealand at the present time. The importance of an institute such as we have formed can hardly be overestimated in a new isolated country like New Zealand, where we have no opportunity of visiting similar kindred institutions to take part in the discussions on various subjects connected with mining, more especially as the structural geology differs greatly in some portions of the colony from that of any other goldfield in the world, with the exception of Transylvania, which is similar in many respects to the geological formation of some parts of the Hauraki Peninsula. The character of the ore we have to deal with demands that well-considered scientific methods be adopted if the material is to be economically and satisfactorily treated. By means of frequent discussions of the various subjects in connection with the proper development of the mining industry, we shall be educating ourselves and conferring a benefit on the colony at large."

At a deputation which waited on the Attorney-General of Queensland in London from the Australasian Chamber of Mines, the object being to direct his attention to certain grievances of mining investors—such as alleged insecurity of tenure, levying a duty of 25 per cent. on imported mining machinery, compelling the employment of the regulation number of men on separate leases adjoining and held by one company—Colonel Josiah Harris said that in Chili there are very liberal mining regulations founded on the most ancient Spanish laws. If the leaseholder there does not comply with the terms of his lease the property is sold by the Government, and, after payment of all expenses, if there is any surplus it is handed to the original holder of the property. Colonel Harris further stated that he held five leaseholds (area not stated) near the Fraser River, in British Columbia, which only cost him £100 a year. Mr. Thomas Mills, an old Queensland miner and investor, said that he took up some ground in British Columbia. He had studied the regulations, and found that 1,500 ft. by 1,500 ft. — that is about

20 acres—could be taken up for one man's ground. On that 20 acres he need only spend 100 dollars for the year, and everything is counted in that expenditure. After the ground had been worked five years, and 100 dollars per annum had been expended upon it, the land could be made freehold. He and other speakers referred to the liberality of the British Columbia mining laws, and hoped the Queensland Attorney-General would bring them under the notice of his Government.

Mr. H. C. Griffiths, president of the Royal School of Mines Association, has been visiting New Zealand with the view of ascertaining what inducements this colony offered as a field for investment. Mr. Griffiths spent five and a half years in Johannesburg and two and a half years in Kimberley. In the course of an interview, in reply to the question, "How deep have they mined in the Transvaal?" he said: "The depth at which the reef is obtained varies. So far, they have not gone more than just over 2,000 ft., though some of the shafts in course of being sunk will not strike the reef till about 3,000 ft. is reached. Eventually there will be a second row of deep-level shafts, being from 3,000 ft. to 5,000 ft. in depth. It is all wet-crushing. Some experiments have been made with the dry process, but they have not been successful." Mr. Griffiths stated that he believed a certain amount of capital intended for investment in South Africa will come to New Zealand, but he added: "It will go to anything likely that turns up in any part of the world."

"I have heard the idea pooh-poohed in the Legislative Assembly of Brisbane of getting gold below 1,000 ft.," said Mr. Thomas Mills, an old Queensland miner, to the Attorney-General of that colony, when waiting upon him as one of a deputation in London. "You know yourself, Mr. Byrnes, that we have got gold below 1,000 ft., although I remember even the Warden in Queensland laughing at the idea of my getting gold at that depth. At that time he remarked, 'If you get it you cannot work it.' Of course, we have proved that at a depth of 2,000 ft. we can get payable gold, and now that we have proved it, the laws ought to be extended."

The output from the Brunner mines, owned by the Greymouth–Point Elizabeth Railway and Coal Company (Limited), for the quarter ending 30th June, was 22,166 tons 8 cwt., the company's contribution to the sick and accident fund, at a halfpenny per ton, amounting to £46 3s. 7d.

The number of steamers entered at the Port of Greymouth during the year 1896 showed an increase of eleven as compared with the preceding year, while there was a decrease of thirteen in the number of sailing vessels. The following are the figures for the years 1896 and 1895:—

	Steamers.	Tonnage.	Sailing Vessels.	Tonnage.
1896 ..	549	136,217	40	6,056
1895 ..	538	135,082	53	6,890

In the Harbourmaster's report it is stated that "the bar kept a straight channel during the past year (1896), and the river maintained the same depth in the channel as the previous year (1895). The depth of water at the wharves has slightly improved. The average depth of water on the bar has been 19 ft. 3 in. The average for the previous year was 20 ft. 3 in. In February it was highest with 23 ft. 3 in., and in September lowest with 15 ft. 1 in. The total rainfall for the year 1896 was stated to be 107·16 in.; in 1895, 91·16 in.

The shipments of the Westport Coal Company from the Coalbrookdale Mine for the quarter ending 30th June, 1897, was 46,805 tons 1 cwt., and from the Millerton Colliery 17,488 tons 17 cwt. The company's payment to the credit of the sick and accident fund of the Miners' Association, Denniston, was £133 18s. 11d. for the quarter, being at the rate of a halfpenny per ton.

In the report of the Royal Commission on Mining in Queensland it is stated that "the great feature of mining at the present day on Charters Towers is the profitable raising of ore which has been found to exist at great depths, shafts having been sunk to a depth of considerably over 2,000 ft." The cost of sinking the Brilliant Extended deep shaft was estimated at something like £40,000, and it was contended by some of the witnesses who gave evidence before the Commission that capitalists could not be induced to undertake that class of mining, which meant increased capital both for development and management, unless larger areas were granted, as the sinking of these deep shafts might involve the erection of large and powerful machinery for the treatment of low-grade ores, at a minimum cost, to make the mine prove profitable. While recognising that on such a subject there was bound to be strong diversity of opinion, the Commission, while unwilling to recommend anything which might tend to locking up known auriferous areas in large blocks, still thought the contention of those who advocated further inducements being given for deep sinking carried the most weight.

A report has been obtained by the Department as to the state of a tunnel at Fairdown on which a subsidy was applied for by the Westport Prospecting Association. It was found that, in consequence of falls of country rock which dams the water back, it was impossible to get in more than 50 ft. from the main entrance to the tunnel, and until this block is removed an estimate of the cost of repairs cannot be made. Great care will be necessary in the removal of this block, as the release of so large a body of water might cause a serious accident. An intimation has been forwarded that if the association will clean out the tunnel to enable the Inspector to report fully on the work, the Government will then be prepared to consider proposals that may be made for further assistance towards continuing the construction of the tunnel, which has been driven 2,366 ft., but about three times that distance would require to be driven in order to reach the old shaft.

The Waimea tail-race has now been driven a distance of over 2,000 ft., and if continued for another 1,000 ft. it would open up about 20 acres of Crown land and 20 acres of private land. If the water were conserved and the extension carried out it would greatly assist in making the present outlay a financial success. The estimated cost, if timber is not required and water can be obtained to remove the *débris*, is about 14s. per foot.

The Grand Junction Mine, Waihi, where a large influx of water occurred in the drive, has been inspected by an officer of the Department. He found the engines going at full speed to keep the water down, the pump being a Worthington, with a high-pressure cylinder of 16 in., and a low-pressure of 26 in., and rams 8½ in., supposed to be capable of raising 22,000 gallons per hour. For three or four weeks they had been pumping 17,000 gallons per hour, but as the engines and rams were placed in the chamber near the bottom of the shaft, and the steam conveyed in pipes down the shaft to work them, there was some anxiety as to the danger of being flooded out at any time if extra water was tapped. A considerable quantity of water was being drained from the Waihi Mine, and had it not been for the excessively wet weather during the preceding three months the manager of that mine was of opinion that there would have been very little water to pump from the Waihi No. 1 shaft. The water in the Grand Junction West had been lowered 7 in., something like 60 chains away from the shaft that the water was pumped from, which shows that a considerable area of the country is being drained westward, exclusive of that on the east on the strike of the Waihi lode; but so far the managers on the strike of the other lodes in the district have not found that the mines they are supervising are benefited by the Grand Junction pump. In the face of the drive where the water is coming out the lode is exposed on the hanging-wall side for about 12 ft. The quartz, very little of which had been broken out when the inspection was made, appears to be well-defined, and has a smooth and straight hanging-wall, the dip being slightly southwards. A dam was put across the drive 500 ft. from the shaft to keep the water back. No arrangements have yet been made as to what assistance the Waihi Company are prepared to give the Grand Junction towards pumping the water.

A report has been received on the Waitekauri Gold Mining Company's special claim, "Socket." The low level has been driven a distance of over 1,500 ft., the drive being 7 ft. in height, 6 ft. wide at bottom, and 5 ft. wide at top, and the whole securely timbered where necessary. A considerable distance was driven by a rock-borer; but when the visit of inspection was made the country was of a soft nature, and not suitable for the rock-drill, and in consequence the work was carried on by hand labour, three shifts being employed. The company have expended on the tunnel and plant £3,800, exclusive of £150 spent on work outside in connection with it. A large sum has also been expended in the sinking of a shaft on the Waitekauri Company's ground (£2,000 of which the company consider is fairly chargeable to the tunnel account). This shaft, which is now over 300 ft. in depth, is equipped with powerful pumping and winding machinery, and will be continued to a further depth of 117 ft., to get the level of the tunnel, when driving will be commenced, so that two faces of the tunnel will be working at the same time.

A subsidy has been granted to the Greenstone Miners' Association towards the cost of driving a tunnel 800 ft. into a terrace, situated about a mile and a half south of Revell Terrace, where the ground to be driven through is likely to be very stony and wet, but is considered worth prospecting by the departmental officer who was asked to report.

Application has been made for a site for a School of Mines at Westport, and is now under consideration by the Land Department.

In order to facilitate future mining operations at Ross, the Totara Miners' Association have recommended that a reservation of 100 acres should be made. A report having been received by the Department to the effect that no work has ever been done on a large portion of the area indicated, the Inspector of Mines has been instructed to institute proceedings for forfeiture of any holdings within the area which are not being fully worked in accordance with the Mining Act and regulations.

Some prospecting licenses applied for in Omaunu No. 2 Block, Whangaroa County, have been granted. The block is situated about ten miles south of Whangaroa, at the head of the Pupuke River, and reported finds of gold and copper have been made from time to time. As the Government have lately obtained full possession of the block from the Natives, prospecting is likely to be carried on in several directions.

A report having been received on the application of Mr. A. Zala and the Totara Miners' Association for a further subsidy towards the cost of constructing the tunnel to test the Captain Russell reef at Ross, the association has been informed that if Mr. Zala and those interested will have a survey made, so as to definitely fix the distance yet required to drive this level to cut the reef, the Government will then decide upon the assistance to be rendered. Some years ago a subsidy was provided by the Mines Department towards the tunnel, which has been driven a distance of 832 ft.

The new oil-bore at Moturoa, near New Plymouth, was driven 1,265 ft. on the 15th of September. The directors intend to sink the bore 2,000 ft. if a payable flow is not reached before that depth is attained.

A subsidy has been granted to the Totara Miners' Association for a further 50 ft. of driving of the prospecting tunnel by Gagliardi and Sons, which is intended for the development of the Mount Greenland reefs.

The Ohinemuri County Council have sent a communication to Mr. Warden Bush, suggesting that an alteration should be made in the direction of enabling leaseholders applying for surrenders to pay up to the end of the month current in which surrender or forfeiture takes place. The Council are of opinion that the alteration suggested "would encourage leaseholders to yield up their tenure and throw land open for fresh applicants much earlier, in many cases, than they do now; for, knowing that they will have to pay the full rent for the half-year, they naturally would not surrender until the end of the half-year, although quite willing to do so if not liable for half-year's rent." As the law stands, there is no general power to permit rent to be paid to date of surrender, and any relaxation in the direction suggested might act as an incentive to many licensees who have taken up areas for purely speculative purposes not to pay rent on the due dates, as required by the Act and the conditions under which their licenses are held.

The application of the Totara Miners' Association for transfer of the subsidy granted to Dunlop and Searle to Marchesi and Foletti, for driving a tunnel 300 ft. on the south side of Duffer's Creek, has been sanctioned. The object of this tunnel, as set forth in the recommendation, is to seek for the Duffer's Creek run of gold, which from this point ceases to follow the creek, and is believed to have crossed over to the terraces. "If recovered, a large area, capable of employing a thousand or more men, will be opened up."

"Last season I went over to British Columbia," remarked Mr. Thomas Mills, when interviewing Mr. Byrnes, Attorney-General for Queensland, in London, to urge the necessity for more liberal conditions in regard to the mining laws and regulations in force in the northern colony of Australia. "British Columbia is the coming place. Of course it is a place that had a lot of alluvial gold at one time, the same as Queensland in the early days, and Ballarat. Now it is turning its attention to reefing. In the southern part of the colony of British Columbia they have very good mines which are paying very well, but they do not happen to be in possession of the British: they are American; but, at any rate, there is still a lot of land left for Britishers."

A report has been received in reference to the work done in Kelly's Terrace Drainage Tunnel, Stafford. The tunnel has been driven about 2,000 ft. at nearly a dead level, and for the whole of that distance water, to a depth of 18 in., is lying in the bottom. 4,000 ft. more will require to be driven to reach the point desired on the starting of this important work, and, if carried out, it is calculated that it will drain 600 acres or more, and also open up Gillman's Gully Lead, where it junctions with Kelly's Terrace Lead. Taking into consideration the exceptional body of sand they have to contend with, the long tail-race they have constructed, and the rise they have put up to act as an incline for the discharge of the *débris*, an additional grant was recommended. With the exception of taking up the road for about 700 ft., which should not have been done, everything had been carried out in a workmanlike manner; but the tunnel, having been carried at so low a grade, the air is light, and ventilation will have to be provided for at an early date, either by pipes or another air-shaft, the latter being preferable. In accordance with the report, an additional grant has been approved towards the cost of the tunnel.

Applications for a subsidy towards prospecting for reefs have been received on two occasions from the miners of Glenorchy, Otago; but as the departmental inquiries, made on the 22nd February, as to the amount of money in hand and to be collected, the names of the officers who are to operate on the bank account, and the name of the bank at which it is to be kept, still remain unanswered, the association have been informed that before the question of granting a subsidy can be considered it will be necessary to furnish the information then asked for.

A report has been received, on the application of the Hyde Miners' Association, Otago, for a prospecting subsidy. It is proposed, for the sake of safety, to sink a shaft in the schist rock, and tunnel out to the wash-dirt, the approximate depth of the shaft being 60 ft., and length of the tunnel, a portion of which will be in rock, about two chains. The estimated cost is £250.

On the application of the Totara Miners' Association, a subsidy has been granted to McKay and Brown to assist them in prospecting auriferous country at the head of Constitution Creek, Totara, and the creeks and terraces on the fall towards the Whitcombe and Hokitika Rivers. The association state that "it has been for a long time known that the above is a gold-bearing locality, but hitherto, owing to the broken and steep character of the country and difficulty of getting provisions, it has been neglected"; and they are of opinion that prospecting will be the means of opening it up and affording remunerative employment to a number of men.

A petition has been received from a number of residents at Tokaanu, asking that a special Act be passed enabling the Government to deal with the Native ownership of Tauponuiatia Block, and to proclaim it a goldfield, including all the Kaimanawa Ranges on the east, and the Hurakia, Tuhua, and Taurewa Ranges on the west. The petitioners state that "good loose gold, and in reefs, has been found in places along the whole of the Kaimanawa Ranges, situated on the east side of Lake Taupo"; and that "quartz reefs, loose gold, and other good indications have also been met with on the west and south-west of Lake Taupo, on the Hurakia, Tuhua, and Taurewa Ranges." Mr. George Blake, one of the petitioners, has since reported that a prospector working for him has discovered four reefs at the Kaimanawa on Government land.

Dr. Levinge, of Palmerston North, has invented a simple astronomical instrument for finding local time and setting time-pieces. He claims that it is particularly adapted to miners who live in remote places; that it is a meridian finder, and therefore a compass; that it will find time by marking when the sun forms shadows of equal length before and after noon; that it will give time irrespective of being placed north; that, in fact, it is a portable sun-dial, made of New Zealand wood.

The attention of the Hon. the Minister of Mines having been called to the prevailing practice of different codes of signals on the various goldfields, regulations for a universal code of signals throughout the colony are now under consideration, and will probably be submitted to the Board of Examiners when the next examination for mine-manager's certificates takes place.

An inquiry has been received from a gentleman in Sydney in reference to the reported discovery of opals at Mount Peel, and a reply forwarded to the effect that applications have been made for six leases to mine for opals, but none of these gems have been submitted to the Government. The Postmaster at Ashburton, to whom the inquiry was addressed, in forwarding the letter, stated that "two registered companies and some other syndicates have been working at Mount Peel, and some opals said to have come from that district have been exhibited here and at Christchurch. Operations have, however, been suspended until next spring on account of snow."

A return has been received from the manager of the Mount Ida water-race showing the re-distribution of water during the month of October, 1896: Number of men regularly supplied with water other than for elevating, 36; supplied intermittently, but wholly dependent on race, 24; supplied for elevating, 19; total, 79.

THE GOLD-MINING INDUSTRY IN NEW ZEALAND.

THE following is an approximate return of the areas held under the Mining Act, annual rental, number of men employed and average earnings, number of registered companies, value of gold produced since registration, and amount of capital actually paid up, and quantity and value of gold exported from 1857 to 31st March, 1897:—

Area of Special Claims, Licensed Holdings, &c., 31st March, 1897.	Annual Rental.	Number of Men Employed.	Average Earnings of Men Employed	Number of Registered Mining Companies 31st December, 1896.	Value of Gold produced since Registration to 31st December, 1896.	Total Amount of Capital actually paid up to 31st December, 1896.	Quantity and Value of Gold Exported from 1857 to 31st March, 1897.	
							Quantity.	Value.
Acres.	£		£		£	£	Oz.	£
133,282	53,650	14,889*	68	461	2,334,617	1,559,226	13,383,528	52,668,246

* Made up of 12,900 Europeans and 1,989 Chinese.

BATTERY AND GOLD RETURNS.

HAURAKI GOLDFIELDS.

Battery Returns for September, 1897.

Name of Company, Mine, or Battery.	Locality of Mine.	Ore or Tailings.	Number of Tons crushed or treated.		Yield of Gold or Bullion.	Value.
			Tons.	Lb.	Oz. dwt. gr.	£ s. d.
Kuranui-Caledonian	Thames	Ore	751	..	203 11 0	544 3 6
May Queen Extended	″	″	238	106	266 4 0	..
School of Mines	″	″	..	9,750	13 14 1	..
Hauraki Anchor	″	″	23	..	16 5 0	..
Claremont	″	″	..	20	19 12 0	..
Tararu Creek	″	Tailings	458	..	83 0 0	246 18 6
″	″	″	700	..	507 0 0	228 0 8
Waiotahi	″	Ore	140	..	186 9 0	509 12 7
Judd's Tailings Plant*	″	Tailings	326	..	63 0 0	..
″	″	″	450	..	97 0 0	..
Alburnia	″	Ore	980	..	195 16 0	522 2 8
Waihi	Waihi	″	3,300	..	11,631 0 0	12,670 5 4
Waihi-Silverton	″	″	1,024	..	622 0 0	1,220 0 0
Waitekauri*	Waitekauri	″	1,830	..	3,728 0 0	3,900 18 10
″	″	″	2,005	..	2,888 0 0	3,050 9 8
Woodstock	Karangahake	″	1,170	..	4,081 0 0	3,060 5 6
Golden Lead	Coromandel	″	10	..	4 14 0	..
Hauraki	″	″	304	312	558 0 0	..
Kapanga	″	″	102	85	109 12 0	..
Tokatea	″	″	25	760	776 17 0	1,955 1 6
Mariposa*	Kuaotunu	″	841	..	111 3 0	..
″	″	Tailings	660	..	65 8 0	..
Kapai-Vermont	″	Ore	360	..	324 0 0	..
G. Fraser and Sons	Auckland	″	..	130	100 6 16	..

* As the Waitekauri returns for August were not sent in time for last publication, they are given above; and from Judd's Tailings Plant there are also two returns. The Mariposa sent in two returns, which are included in the above figures.

WEST COAST AND OTAGO GOLDFIELDS.

Battery Returns for September, 1897.

Name of Company, Mine, or Battery.	Locality of Mine.	Quartz, Tailings, or Cement.	Number of Tons crushed or treated.	Yield of Amalgam.	Yield of Gold.	Value.
				Oz. dwt. gr.	Oz. dwt. gr.	£ s. d.
Keep-it-Dark	Reefton	Quartz	300	279 0 0	95 4 0	..
Sir Francis Drake *	Merrijigs	″	260	..	76 5 19	..
Victory	Paparoa Ranges	″	68	180 0 0	88 2 0	..
W. Millikin and party	Addison's Flat	Cement	2,092	..	96 0 0	..
Achilles	Bullendale	Quartz	347	457 0 0	216 0 0	773 17 0
Glenrock Consolidated	Macetown	″	450	637 14 0	212 0 0	..
Westralia and New Zealand Gold Explorers	″	″	85	93 0 0	30 11 0	..
Ditto	″	Concentrates	47½	..	63 0 0	172 0 0
Morning Star	Preservation Inlet	Quartz	243	1,199 0 0†	361 0 0	1,480 0 0

* 17th July to 4th September. † 57 oz. not retorted.

OTAGO DREDGING RETURNS.

The following returns for the month of September have been furnished by the Secretary of the Dunedin Stockbrokers' Association:—

Name of Company or Dredge.	Locality of Operations.	Yield of Gold in Ounces.
Clyde	Clyde	342
Golden Gate	Island Block	240
Golden Run	Miller's Flat	177
Golden Treasure	Miller's Flat	91¼
Jutland Flat	Waipori	110
Upper Waipori	Waipori	99¼
Roxburgh	Roxburgh	62¾
Ettrick	Ettrick	61
Enterprise	Alexandra	89¾
Dunedin	Roxburgh	31
Sew Hoy Big Beach	Shotover	30¼
Moonlight Sluicing	Moke Creek	13¼
Buller	Westport*	59½

In the Nelson South-west Goldfield.

KAPANGA GOLD-MINING COMPANY (LIMITED), COROMANDEL.

Reports on Diamond Drill Operations Below 1,000 ft. Level.

Report for Month ending the 1st May, 1897.—The chamber is finished and the engine erected, also the shaft sollared in order to carry the vertical for driving the boring-rods; and, in order to save time in cutting boring-rods, we have fixed a box about 30 ft. in length in the corner of the shaft. By doing this we hope to carry on the work faster. The shaft is lined up, making the men secure below; and a strong pent-house put in at the 940 ft. level, which will make everything safe. All is now ready to start boring, and if we meet with solid country it should not take long to bore the 1,000 ft. We shall watch the work with great interest.

Report for Month ending the 29th May, 1897.—We commenced boring on the 7th May, and, after boring about 5 ft. one of the air-compressor valves broke, and thus delayed us about a week; but, having effected the necessary repairs, we resumed operations, and up to the present time we have bored 30 ft. The class of country we have penetrated has been a very congenial andesite, most favourable for the production of gold. In the last 10 ft. we have passed through a reef formation about 16 in. thick, composed of quartz and pug; but so far no gold has been visible in the stone. We are getting a portion of the "core" assayed, in order to test its value.

Report for Month ending the 26th of June, 1897.—During the month we have bored 34 ft. The country rock penetrated is very congenial for the production of gold; and assays taken from a point 30 ft. below the bottom of the shaft to a depth of 64 ft. are as follows:—No. 1, £1 10s. 9d. per ton; No. 2 (being portion of a core 50 ft. below the bottom) resulted in just the same amount. The rock is very compact, and carrying small veins of quartz, heavily charged with iron pyrites. It is satisfactory to know that gold exists at 1,070 ft. below the surface, or 764 ft. below the sea level. The progress made during the month with the bore has been slow, owing to the scarcity of carbons for the crown-head. Besides which we had to get a new crown-head, as the first one was too hard to allow of the insertion of the carbons. However, everything is fixed up now, and hope to make good progress in future.

Report for Month ending the 24th of June, 1897.—During the month we have bored 41 ft., and tubed the hole for a distance of 64 ft. This was necessary, as the reefy matter we passed through constantly filled up the hole. Since tubing, we have used a 5 in. crown-head, which enables us to make fair progress. The country rock at present is very compact, and shows a heavy deposit of mineral, which assays as follows:—Bullion, 19 dwt. 12 gr. If the country rock continues of the same class as we are penetrating, and a reef should be met with, we have every reason to expect very favourable results. The total depth of bore is 105 ft. below the 1,000 ft. level.

Report for Month ending the 21st August, 1897.—We have bored during the past month a further distance of 60 ft. For the first 40 ft. below the 105 ft., we bored with a 5 in. crown-head. The country penetrated was decomposed andesite, charged with iron pyrites. This gave place to very broken country, and, in order to carry on further operations, the hole was tubed with 5 in. tubes, and we commenced to bore with a 4 in. crown-head; but, after boring a distance of 20 ft. with this, the hole commenced to fill up, and we could not carry on boring unless we tubed with 4 in. pipes; but, as there were none, we decided to draw the 5 in. tubes, in order to widen out the 4 in. hole so as to take the 5 in. pipes. By adopting this plan we shall be able to bore with a 4 in. crown-head, and I am hoping by this means to make better progress, provided we do not get into broken country. A piece of "core" was taken from the bottom of the bore about 9 in. long, which showed a very compact and altogether much better class of country.

Report for Month ending September 18th, 1897.—During the month we have bored a further distance of 15 ft., making a total of 181 ft. below the bottom of "Larnach's shaft." The last 16 ft. of country penetrated was of a very broken nature, and very much mixed with reefy matter. We have had several samples assayed, with the following results: No. 1.—Gold, 1 oz. 6 dwt. 3 gr. per ton; silver, 19 dwt. 14 gr. per ton: value per ton, £5 6s. 6d. No. 2.—Gold, 9 dwt. 17 gr. per ton; silver, 3 dwt. 6 gr. per ton: value per ton, £1 19s. 2d. No. 3.—Gold, 13 dwt. 1 gr. per ton; silver, 6 dwt. per ton: value per ton, £2 12s. 8d. By washing the sand taken from the core-box, strong colours of gold were shown, which tend to support the above assays. We carried out our intention and drew the 5 in. tubes, and resumed boring, but in about 20 ft. more the hole began to fill in again. Then we put down two 4 in. tubes, and used a 3 in. crown-head, but after boring 2 ft. we were compelled to stop again. We are now trying to overcome the difficulty, but if we fail we shall have to suspend operations.

GOLD-MINING AT PRESERVATION INLET.

[By Mr. Richard Allen, Legal Manager Morning Starand several other gold-mining companies.]

Now that the continued satisfactory returns from the Morning Star Gold-mine have established the fact of the reefs in this out-of-the-way field being payable, a few particulars of its early life and growth may be of interest. For the benefit of the uninitiated, it may be stated that Preservation Inlet is the first of the West Coast Sounds after leaving the Bluff, and is at the furthest south-west point of the island, the means of communication being by steamer from Invercargill fortnightly. For many years odd prospecting parties had found their way there and had reported obtaining alluvial gold, but it was in 1891 (and in consequence of the display of gold at the Exhibition of 1890 at Dunedin) that a party of farmers from the Fortrose district, amongst others, spent some months there, and from the fact of their returning the following year it may be presumed they did fairly well. Up to this time seeking for alluvial gold seemed to have been their one aim, but in 1892, as Messrs. J. H. Smith and party were clearing a spot for pitching their camp on the Wilson's River, they cut a large tree, which fell across the river and brought down another tree from the opposite side, exposing a block of quartz carrying gold, which doubtless was not exaggerated when put at anything up to 100 oz. to the ton. A number of claims were pegged off, the owners of that where the rich deposit was obtained forming themselves into the Golden Site Gold-mining Company (Limited), with a capital of £30,000 in 30,000 shares of £1 each, 22,000 of which, paid up to 15s. were allotted to the original holders, the 8,000 subscribing shares being taken up by a Christchurch syndicate in one line. This locality at Wilson's River, being some distance inland, and at a considerable elevation, the Government constructed a tramway from the township of Cromarty (which had been surveyed on the shore of the inlet) for a distance of five miles at a cost of about £4,000, and thus the Golden Site Company were enabled to get up their machinery, &c., consisting of a ten-stamp battery, berdans, &c., to the mine-site. A water-race was cut, the company holding rights for twenty Government heads with sufficient fall and supply to drive, if need be, a mill of 100 stamps, &c. In August, 1894, the machinery was started, the result of the first fortnight's work from 130 tons put through being a return of 204 oz. of gold, which realised at the Melbourne Mint nearly £800. Crushing was continued with varying success up to the beginning of 1896, the total yield being about 1,150 oz., value £4,500, from 1,850 tons of stone milled. The workings, which had been carried under the river at about 70 ft. below its bed, becoming flooded in consequence of the river breaking through, together with the gradual decreasing yield for some months, so disheartened the shareholders that when 15s. 11d. had been paid up on the contributing shares, and 11d. on the vendors' shares, making an equal amount, it was decided to wind up, and a new company was formed under the title of the Golden Site Extended Gold-mining Company (Limited). This company was registered in January last, and are sinking a new main shaft in the hope of striking the rich reef that is believed to exist below where it was found on the surface referred to above. This shaft, which is being sunk under the direction of the mine-manager, Mr. W. Wylie, M.A.I.M.E., is very substantial, being 12 ft. by 4 ft. 6 in. in the clear, with three compartments timbered throughout with 9 in. by 3 in., was at latest advice down to 135 ft., and it is intended to be sunk 200 ft. or 250 ft. before opening out. Several companies were formed and shafts sunk, drives and cross-cuts put in, on what was considered to be the line of reef in the Wilson's River, and although reef formations were traced and gold-bearing stringers and leaders met with, the companies being composed chiefly of working miners, funds ran out and operations had to be discontinued.

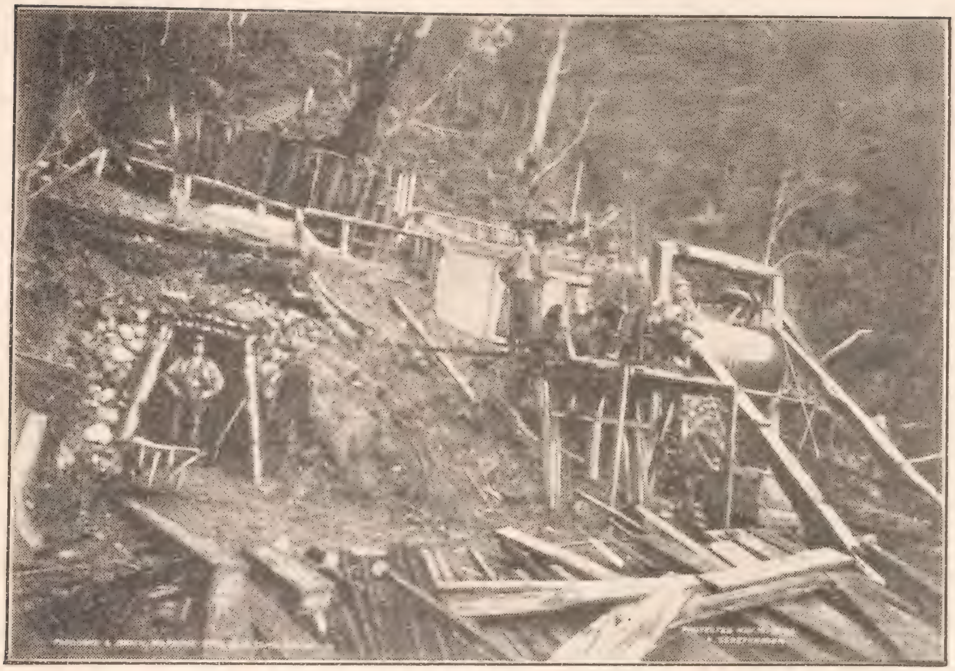
Some parties have done fairly well in working the terraces for alluvial gold, and also in gathering specimens of quartz gold from the water-courses, the latter pointing to the fact that valuable quartz reefs exist in the mountainous sides of the Wilson's River, as shown by Mr. H. A. Gordon's reports, and it is believed only await the expenditure of capital in systematic and practical prospecting to return a rich harvest.

What is now called the Morning Star line of reef was discovered through rich specimens of quartz gold being found in the waterways running towards the inlet, distant about two miles and a half to the north of the Golden Site, and where the mountains rise abruptly to a height of 1,000 ft. to 1,500 ft. from the inlet. About December, 1894, the reef was located some 430 ft. high on one of these mountains, and about 4 tons of stone were taken from the outcrop and crushed at a one-stamp battery which had been erected by Messrs. Wylie and Scott, yielding about 44 oz. of retorted gold. The owners of four adjoining claims amalgamated, and a company called the Morning Star Gold-mining Company (No liability) was formed, with a capital of 24,000 shares of £1 each, 12,000 of which were issued to the proprietors for their interest as paid up. The other 12,000 shares were subscribed for, and on 6,000 (called "B" shares) the sum of 4s. 9d. per share has been called up, and on 6,000 (called "C" shares) the sum of 3s. 10d. per share has been called, making a total called-up capital of £2,575. In August, 1895, this company started crushing with a five-stamp mill, and in March, 1896, another five stamps were added and four berdans. About two months since ten more berdans were erected for treating the tailings, and, as showing the wisdom of the latter course, it may be stated that by the last return 80½oz. of retorted gold had been won by these berdans since they were started. The total product of the mine to the last return was 7,345 oz. of retorted gold, value £29,850, from 6,108 tons of stone treated, out of which the shareholders have had returned to them in dividends within a year 7s. 9d. per share all round, or a total of nearly £10,000, while, as stated above, only £2,575 was called up.

The mill, &c., is worked by steam-power, but the company are gradually utilising their water-rights, and expect shortly to have sufficient water-power to dispense with the more expensive steam process for at least the greater part of the year.

The mine is worked by adit-levels in the mountains, and these comprise at present four. The first put in (called No. 1), where the outcrop was discovered, is 430 ft. above sea-level; the next was No. 2, at 340 ft.; the third (called 1A) at 575 ft.; and the last (1B) at 725 ft. No. 1 level was driven south about 30 ft. from the crosscut, and as it was believed the gold shoot was going the other way this level was driven north some 90 ft., but as the stone was yielding only a few pennyweights to the ton, it was causing some anxiety to the directors, who visited the mine in a body to consult with the mine-manager as to what was best to be done, and it was during this visit—viz., in April, 1896—that the board had the good fortune to meet Mr. A. McKay, the Government Geologist, who had then been spending some months in the district preparing a report for the Government. He advised them to stop the driving to the north in the No. 1 level, giving it as his opinion that the gold was going to the south, and that he believed they would have to go a very short distance to the south to come on to really good payable stone. Acting on this advice, instructions were given accordingly, and within a fortnight of again starting the drive to the south Mr. McKay's judgment was proved to have been worth following, for the stone yielded about 1oz. to the ton, and since that time the returns have been gradually improving, the last two, *i.e.* from 3rd July to 31st August, for nine weeks, yielding 1,296 oz. from 647 tons. At present the length of the levels is as follows:—No. 1, about 600 ft.; No. 2, about 650 ft.; No. 1A, 460 ft.; No. 1B, just started. So far the stone seems to be richer as the hill is ascended, and from the upper, or 1B level, there is still about 200 ft. to rise before reaching the summit, and as the strike of the reef has been proved for over 1,200 ft. going in a direct line through the company's property, it looks as though there are good prospects for the shareholders for a considerable time to come, besides chances of the gold continuing down.

A number of claims have been taken up on what is believed to be the Morning Star reef and adjacent thereto; and as reefs carrying gold have been traced in several places it is considered by many that reefs parallel to the Morning Star line will be found to run through what Mr. McKay describes as a gold belt for some distance. A company has been formed recently to work the Alpha and Dawn claims on Sealer's Creek, called the Alpha Gold-mining Company (No liability), consisting of 24,000 shares of £1 each, the vendors taking one-half the shares as paid up; and, as showing the confidence of the public, it may be stated that these shares were over-applied for within a few days. Mr. Wilcox, late of Auckland, has taken charge, and it is intended to erect machinery and open up the claim vigorously. As the prospectus states the reef has been traced for over 300 ft., crushing should give good results from the start. The prospectus of another company, the Sunrise, has just been issued, and a large portion of



Paddocks and Drain, Morning Star Gold-mining Company, Long Beach.
K. Gerstenkorn, photo.

W. A. McKay, photo. *The Open Workings, Waihi Gold-mining Company.*

the shares have been applied for, to work the Geelong and Geelong Extended claims, situated to the east of and adjoining the Morning Star property.

To the west of the Morning Star line the owners of the Jessica claim are putting in an adit and sinking on a well-defined reef 5ft. thick, having good walls, the outcrop of which assayed at Dunedin 7 dwt. 19 gr., and should the development prove satisfactory, a main adit could be driven which would give 1,000 ft. of backs.

On Coal Island two special claims have been taken up by an Invercargill syndicate. A reef has been discovered in Moonlight Creek, and another in No. 6 Creek. Contracts have been let for putting down a winze on each.

On the north side of the inlet a reef has been discovered and traced for some considerable distance from what is known as Te Whara Beach, and where, by the way, there was a considerable rush about two years since; but, although some parcels of alluvial gold were obtained on the beach, it did not prove of sufficient extent to retain the number who went there for any length of time.

What looks to be a continuation of the Morning Star line of reef was some time since traced across the inlet to the north, at what is called Cuttle Cove. Some very rich stone was obtained, and a number of claims were taken up, and a company was formed for working the St. George and Crown claims near the beach. By the last steamer a representative of the Mines Corporation of London went to inspect these and also to have a general look over the inlet.

There is a claim taken up some distance up the inlet, and known as Bradshaw's, from which 25 tons of stone have just been shipped to London. A previous shipment of 2 tons were reported to have given the following results, certified by Bank of England Assayer, viz:—1 oz. 19 dwt. 6 gr. gold and 42 oz. silver. The proprietary have a definite offer of £9 per ton for similar stone delivered in London, c.i.f.

Altogether, it seems pretty clear that the prospects of the field at Preservation Inlet are about to be fairly tested, and undoubtedly the report of Mr. McKay, the Government Geologist, laid before Parliament last year, has materially helped to encourage many who have since been expending time and money in prospecting this field, as that gentleman proved that there was a belt for some miles wide of true Silurian formation, which had been erroneously described as of the Devonian formation. Many experienced miners consider that all that is required is the introduction of a moderate amount of capital to assist the opening out of the reefs already traced to develop extensive and payable gold reefs over a considerable area.

Invercargill, 14th September, 1897.

[Since the above was written advice is to hand from the Morning Star Mine that at about 96 ft. in the winze put down in No. 2 (*i.e.*, the lowest level), they are in good quartz, which, on assay, gave over 4 dwt. to the ton, with a reef fully 4 ft. to 5 ft. wide, and this is looked upon as practically establishing the fact that the gold goes down, and is not simply a shoot or shoots running up the surface of the mountain.]

RETURN OF YIELD, MORNING STAR MINE, PRESERVATION INLET, FROM OPENING OF MINE.

Return No.	Date Received.	No. of Tons Crushed.	Retorted Gold.	Assay.	Standard Gold.	Value.
	1895.		Oz. dwt. gr.	Oz. dwt. gr.		£ s. d.
*	Jan. 30–Aug. 23	29	65 9 20	...	...	256 15 11
1	Sept. 7	120	125 16 0	23 1 0	131·90	513 11 9
2	" 24	110	90 12 0	23 1 1	144·29	561 16 7
3	Oct. 4	70	46 7 16			
4	" 26	142	95 19 0	23 1 2	101·12	393 14 9
5	Nov. 16	123	35 2 0	23 0 3	97·937	381 6 1
6	Dec. 7	122	57 11 0			
7	" 21	79	47 7 0	23 1 0	101·771	396 4 9
	1896.					
8	Jan. 20	106	49 15 0			
9	March 21 †	135	35 12 0	23 0 5	150·725	586 17 1
10	April 20 ‡	299	109 10 0			
11	May 18	243	225 10 0	23 0 6	235·352	916 12 0
12	June 13	222	169 10 0	23 0 7	177·940	693 8 3
13	July 11	284	178 6 0	23 0 2	185·862	723 14 0
14	Aug. 1	240	233 0 0	23 0 6	244·817	953 5 2
15	" 29	300	384 5 10	23 0 7	403·281	1,572 5 6
16	Sept. 26	282	431 16 0	23 0 5	452·630	1,763 2 9
17	Oct. 24	310	498 15 0	23 0 5	523·770	2,035 1 3
18	Nov. 21	317	399 15 0	23 0 6	420·336	1,636 13 8
19	Dec. 21	280	287 11 0	23 0 7	302·530	1,177 19 7
	1897.					
20	Feb. 20	286	258 3 0	23 0 2	488·350	1,901 10 4
21	March 20	212	209 6 0			
22	April 24	398	604 8 0	22 2 2	403·435 222·855	2,440 11 3
23	May 8	158	297 9 0	23 0 4	311·806	1,214 1 10
24	June 5	270	498 10 0	23 0 1	519·715	2,023 12 9
25	July 3	324	533 10 0	23 0 3	556·220	2,165 15 7
26	Aug. 2	272	573 3 0	23 0 6	601·588	2,342 8 7
27	Sept. 4	389	804 3 0	23 0 2	840·238	3,271 13 6
		6,122	7,346 1 22		7,618·468	£29,922 2 11
28	Oct. 2	243	360 16 0	(Returns not yet to hand.)		

* Trial crushings at Invercargill and Melbourne.
† Last crushing from stone to the north.
‡ Commencement of crushings from the south, when the advice of Mr. A. McKay, Government Geologist, was acted upon.

8th October, 1897. RICHARD ALLEN.

CAPTAIN RICHARD, the metallurgist of the Mount Morgan Mine, in Queensland, who is an ex-student of the Ballarat School of Mines, stated to the Royal Commission that he considered, before a man could become a really first-class mining engineer, he must first become a first-class mathematician, so as to enable him to deal with civil engineering and the erection and supervision of large mining works; therefore, in order to make the schools of mines of any great value, the curriculum of general education would have to be very high.

A RETROSPECT OF OHINEMURI GOLDFIELD.

[By Mr. JOHN McCOMBIE, Manager of the Woodstock Company's Mine, Karangahake.]

III.

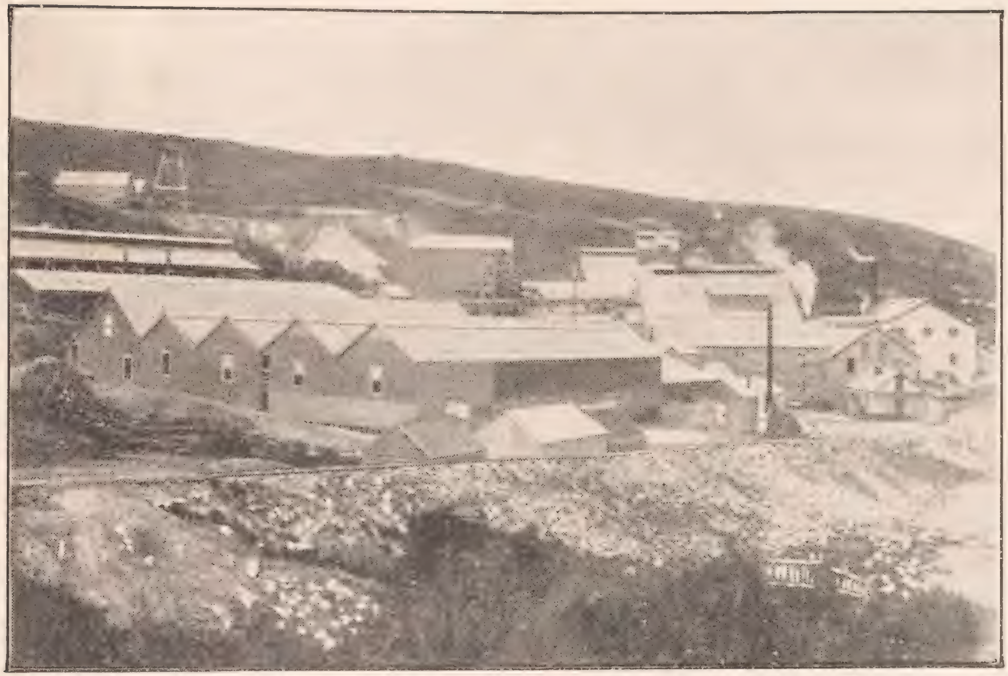
The Discovery of the Waihi Mine.

THE Waihi Company's mine having gained a world-wide reputation for its monthly bullion returns, a brief account of the early history of the property may be worth perusal by those of your readers who take an interest in such matters.

It is now more than twenty years ago since I, in company with an American named Robert Lee, started fossicking for gold in the Ohinemuri district, and there is still a strong fascination for me in the remembrance of that time. The free life and self-dependence, together with the fact that one never knew to-day what to-morrow would bring forth, had an attraction of its own that can only be understood by those who have had similar experiences. About the month of February, 1878, we decided on going eastward of the known belt of gold-bearing country then being worked in the Waitekauri district. This took us out in the direction of Waihi, where the landscape is widespread, comprising thickly-wooded hills and open plain, the latter being covered over with a stunted growth of fern and manuka scrub, indicating poverty of soil. At the time of which I write there were no Europeans in the locality, and only a few Natives belonging to the Ngatikoe Tribe, who lived on the bank of the Ohinemuri River, about one mile and a half distant from the present Waihi Township.

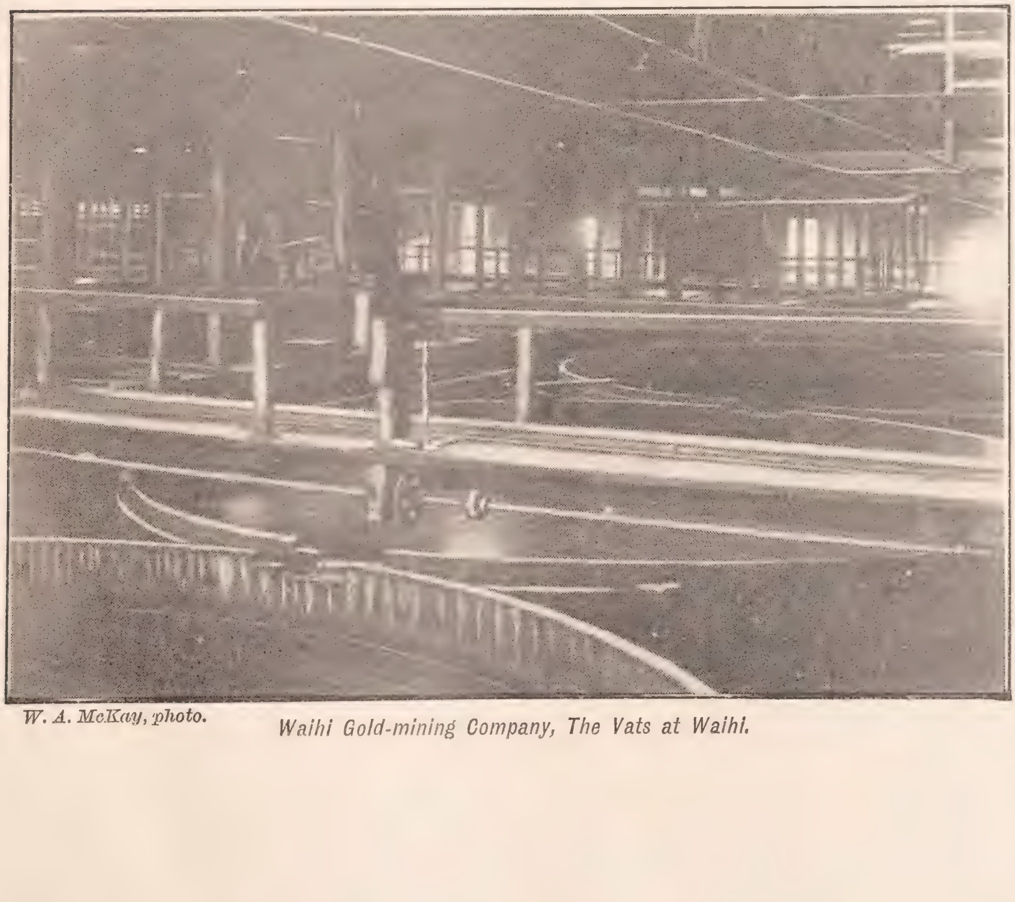
Long before arriving at the scene of our subsequent adventures we could see the quartz comprising the outcrop of the now famous lode glistening beneath the rays of the morning sun, and when we came to Maungatoetoe Stream the first dish of rubble panned off gave a good prospect of free gold. This convinced us that we were in an auriferous region, and we hastened on to the outcrop of the lode looming up largely on the cone of the Pukewa spur, which rises abruptly out of the plain to a height of about 250 ft. We soon covered the intervening space, and had our picks at work breaking out ore from its rugged walls. Having secured about a dozen samples from as many different places along the line of the outcrop, we went back to the creek, where we commenced reducing and testing. This was done by crushing the ore on the flat stone with our hammer-headed prospecting picks, and in every instance we obtained fair dish prospects of the precious metals. Being highly pleased with these results, we returned to the lode, of which we now made a thorough examination, and amongst other things we took particular notice of the following: The lode appeared to be about 20 ft. in thickness. It had a general north-and-south course, with an easterly underlie, and the enclosing country-rock consisted chiefly of decomposed tufa, which invariably accompanies gold- and silver-bearing lodes on the Hauraki Goldfields. The ore-body was laminated, streaked with sulphides of iron and silver, and sprinkled with oxide of manganese. The outcrops of several other reefs were visible on the adjacent hills, and, taken all round, the place afforded better chances of success than Waitekauri, where we had been gold-hunting for the previous six months with but scant results, and we determined upon giving Waihi a trial. During the afternoon we experienced a heavy gale from the north-east, accompanied by a steady drizzle, and towards night, when making the return trip, we were overtaken by a regular downpour of rain, which completely drenched us before reaching our camp at Waitekauri.

Next morning, the weather having cleared up, we bundled our traps together, stowed them on a packhorse, and started out with light hearts for the new El Dorado. Nothing of moment happened till we reached the Waitete Stream, where tufts of fern and flax hung from the bending shrubs, and masses of drift-wood lodged high and dry on the banks, indicating the height of the "fresh" consequent upon the heavy rain which fell overnight. Although the flood-waters had receded considerably the stream was still deep, but somewhat narrow at the crossing, and I essayed to vault over with the assistance of a long pole which, however, broke short off when I threw my weight upon it, and landed me in the middle of the miniature mountain torrent. I was swept down some distance before I grasped the overhanging leaves of a flax-bush growing on the bank opposite to the one which I had left, and then I struggled ashore. By knotting several blades of flax together I made a rope long enough to reach from bank to bank. One end of this, with a stone attached, was thrown across to Lee, who made it fast to the headstall of the horse's bridle. After some persuasion we managed to make the horse enter the stream, and when he did so the first plunge launched him out of his depth, swags and all, till there was nothing but his nose visible above water. Now I was obliged to pull my hardest on the flax rope, so as to bring the animal, loaded with all our worldly gear, to the approach at my side, and in



W. A. McKay, photo.

Mill at Waihi, Waihi Gold-mining Company.



W. A. McKay, photo.

Waihi Gold-mining Company, The Vats at Waihi.

this I succeeded, more by good luck than otherwise. Fortunately our swags were wrapped up in waterproof sheets, and therefore they were not much the worse for their immersion. Lee, who could not swim, was obliged to travel about half a mile down stream before finding a place narrow enough to leap across, and, joining me as quickly as possible, we resumed our journey. Later on that day we experienced considerable difficulty in fording two other small streams, and the sun was low down on the horizon by the time we reached our destination—tired, wet, and hungry.

The following day we commenced cutting trenches across the lode at stated intervals apart, and we got fair prospects of gold and silver at every point of intersection. As the ore appeared to be richest at the northern end of the outcrop we resolved to test the lode there at a depth of 60 ft. beneath the surface. To accomplish this it was necessary to drive a cross-cut from the western side of the spur, a distance of over 200 ft., and we at once set about the preliminaries towards carrying out our project. First of all we wanted a wheelbarrow, and the nearest place to get one was Waitekauri, about nine miles away. To convey this barrow from point to point was the most arduous task I ever undertook, and I do not think that either force or skill would compel me to repeat the performance. Before covering the first four miles of the track I had exhausted all the known methods of barrow-trundling. I tried driving it before me, pulling it after me, turning it upside down, carrying it on my shoulders, and slinging it on my back after the fashion of a Maori *pikau*, which proved to be the easiest style of taking it along. It was not quite daylight when I left Waitekauri, and yet I did not get to our camp till 8 p.m., when Lee, who had been ahead with a pack-load of tools, was starting out in search of me. The first ten days of our sojourn at Waihi were occupied in building a whare, erecting a smithy, and burning some charcoal for tool-pointing purposes. From the outset our work progressed at the rate of 5 ft. per day—the country penetrated being very favourable for driving.

Early one fine summer morning, when our tunnel was in about 80 ft., we were visited by two hoary-headed Maoris, who told us that Pukewa was a *wahi tapu*, and insisted upon our suspending operations at once. This we quietly but firmly declined to do, and after a warm debate they left for their *kainga*, where they said there were a large number of Natives who would clear us out pretty quickly.

Sure enough next morning the old man returned, in company with several young ones and quite a host of women, who were all armed with *taiahas* and other weapons of primitive warfare. As soon as I caught sight of the advancing army of Amazons, I knew from experience that our troubles were about to begin, and I attributed this Native raid to the grasping greed of a certain so-called white man, who wanted to be a sleeping partner in the mine. The spokeswoman, an aged crone, addressed herself to me in a tirade of abuse that would have done credit to a Billingsgate fish-woman—meanwhile several ancient dames took occasion, every now and again, to emphasize their leader's remarks by waving their weapons in dangerous proximity to my face. Throughout these interesting preliminaries my mate was working in the tunnel, and at last he came out with a barrowful of stuff broken from the face. This he had tilted over the tip-head, and when about to re-enter the level three buxom damsels seized the barrow, and a general struggle ensued. For a time he held his own, but eventually he was overpowered, and drawn, barrow and all, back towards the tip-head, which was about 40 ft. in depth, tapering gradually away in the direction of a fern-covered terrace. Just when the women reached the extreme edge of the tip-head, which they had not noticed, Lee let the barrow go, and I shall never forget what followed. There was a momentary struggle on the part of the women to restore their equilibrium, but the effort came too late, and away they went down the soft tip, taking turn about with the barrow in the matter of ground and lofty tumbling. It may have been a very ungallant thing to do, but, nevertheless, Lee and I enjoyed the performance down the tip, laughing all the while most heartily.

Maoris have a very keen sense of the ridiculous, and our laughter raised their dander properly. Assisted by their friends, the amateur female acrobats succeeded in pulling themselves together, and after arranging their drapery made straight for us—their eyes rolling savagely in their heads, and clutching their weapons in a most threatening manner. Believing discretion to be the better part of valour, under the circumstances, we sought refuge in the tunnel, where we remained for fully an hour listening to the tirade of choice epithets hurled at us by the excited viragoes outside. While this was going on we had prepared a couple of charges of blasting powder with pieces of fuse attached thereto ready for emergencies. It was a happy thought, because, finding that they could not lure us out, the Natives combined their forces to pull down the *débris* around the mouth of the tunnel, and it looked as if we were going to be buried alive. Within what seemed to us a very brief period, there was not more than twelve inches of space between the *débris* and the roof of the level, and we now considered it was high time to retaliate.

Stealing quietly out under cover of the darkness caused by the filling in of the entrance to the level, we lit the fuse attached to both powder charges, and watching our opportunity threw them out of the small opening just in time to see them well covered by a heavy fall of earth from the sides of the open cuttings. Then we returned to the face of the level, where we had scarcely ensconced ourselves when we heard a terrible explosion outside, followed by loud exclamations of surprise on the part of the Natives. This was succeeded by a general hubbub, which gradually died away in the distance, and then we thought it advisable to make our exit. A quarter of an hour's hard shovelling enabled us to force our way out, and we struck a "bee-line" to the top of the spur for the purpose of learning which route the Natives had taken. Presently we caught sight of them going in the direction of the East Coast, and we both heaved a sigh of relief upon seeing the full number on the track, tramping along Indian file, as if nothing unusual had happened. That night we decided not to do any more work till we could ascertain what shape our tormentors' ensuing movements were likely to take.

Next morning we were not much surprised to observe the same crowd of Natives put in an appearance at the mine, which was in full view of the whare, and not more than half a mile away. It took our dusky friends some time to realise that we had no intention of resuming work that day, and at length one of their number favoured us with his presence. Taking it for granted that we understood Maori, he delivered a long oration descriptive of the system under which he and his people had been robbed of their lands by the Government, both past and present. He charged Lee and I with desecrating an ancient burial-place, where his ancestors had been consigned to mother earth long before there were any pakeha thieves in the colony. Should we persist in our search for filthy lucre on sacred Pukewa, our whare and other belongings would be burnt, and we ourselves would be slung like pigs on long poles and carried out of the district. *Utu* to the amount of £1,000 would not assuage the grief of his people for disturbing the graves of their forefathers, and in his early days he had seen pakehas tomahawked for a lighter offence.

To show this old chap that we were not entirely unprepared for anything that might eventuate, we exhibited our guns and a revolver, which I think had a soothing effect upon him; but still, when going away, he threatened us with all sorts and conditions of vengeance. So far as the men were concerned we knew there was nothing to fear; but, having no desire to meet the women in a free fight, we meandered about the whare for fully forty-eight hours. Day after day, from early morning till dewy eve, the Maoris kept watch and ward over the mine, and wearying of the enforced idleness, we determined to "euchre" them by working at night. Superstitious to a degree, they never gave us any trouble after dark, and the level advanced just as rapidly as would have been the case had we worked in daylight. Now they began a succession of petty annoyances extending over several weeks, and culminating in a complete clearance of everything portable in our whare. This well-matured plan was put into execution by a party of gum-diggers belonging to the Ngatipou tribe, when we were out on a pigeon-shooting expedition, and the plunderers had a long start before we became aware of our loss. Nevertheless we went off in pursuit, following the trail till darkness shut it out from our view, and then we were reluctantly obliged to retrace our footsteps. Since then I have often thought that it was as well we did not overtake them, because we were in a very angry mood, and the results of an interview might have been disastrous to both parties. That night we dined on roasted pigeons, and next morning tramped to Owharoa, where we purchased a fresh supply of food and clothing. For fully a fortnight we took turn and turn about in watching the whare and driving the tunnel, and thereafter we were allowed to continue our work in peace.

Within four months of the time of our starting we had driven the cross-cut up to and through the footwall branch of the lode, which proved to be 17 ft. in thickness, and good prospects of gold and silver were obtainable from any part of it. We took out a trial lot of two tons, upon which the Thames County Council paid the cost of transit to Owharoa, where it was treated in the Smile of Fortune battery, for a return of 1 oz. 3 dwt. of bullion, value £2 17s. 6d. per oz. This, in round numbers, was £1 11s. per ton, which did not represent more than 35 per cent. of the intrinsic value of the ore. Previous to treatment we had taken average samples for assay purposes, and these were assayed by Mr. T. Heron, who was then in the Bank of New Zealand, Thames, with the following results:—

ASSAY VALUE ORE SAMPLE, PROSPECTOR'S CLAIM, WAIHI.

	Oz.	dt.	gr.
Bullion..	4	6	0
Containing gold	1	2	0
Containing silver	3	4	0
Value per ton ., ...	£4	14	0

Armed with the bank results of the treatment of the ore by the battery process, as well as with the certificate setting forth its assay value, Lee and I did not anticipate much difficulty in obtaining the needful to exploit the mine; but, unfortunately for us, we reckoned without our hosts—the mining experts. The whole concern was reported unfavourably upon by almost everyone who paid the place a visit, and who considered themselves authorities on anything appertaining to gold- and silver-mining. In short, we were laughed at by all the knowing ones of the day whenever we made an attempt to talk about the Waihi reefs. One authority of the first water, to whom I showed the assay certificate, scoffed at the idea of ascertaining the value of ore by assay. He said assaying was a metallurgical "fad," dangled before the eyes of the mining community by men who wanted to make money *anyhow*, but no practical man believed in it.

While waiting for something to turn up, we heard that Hone Werahiko had struck gold at Te Aroha, and we hurried away to the scene of the new discovery. During our absence a visit was paid to our workings by a Coromandel prospector named W. Nicholl, who was so favourably impressed with the show that he induced his friends to apply for several licensed holdings on the line of lode. Before these could be legally granted it was necessary to lay a plaint against Lee and myself for non-working. This was done by Mr. A. Porter, acting on behalf of the applicants, and rather than have any legal bother about it we abandoned the ground in the Warden's Court unconditionally. The new owners not only made use of our level, whare, and other belongings *sans* fee or reward, but one of them told us that we ought to consider ourselves very lucky to get off without the imposition of a heavy fine for non-compliance with the mining regulations.

After a time two batteries were erected, and one of these was kept going continuously for many years, during which 18,000 tons of ore were dealt with for an average return of 7s. 6d. per ton or thereabouts. The tailings resulting from the treatment of this ore were all allowed to run to waste, and there are now lying in various parts of the Ohinemuri river-bed hundreds of tons that give an average assay value of £2 per ton.

In writing up the early history of the Waihi district, it is not necessary to add anything about the existing state of affairs, because they are too well known to require any comment from me, and all the latest developments point clearly to the fact that there is a big future in store for the place.

Conclusion.

Before concluding this article on the Ohinemuri goldfield, I would like to call attention to the fact that there is no auriferous district in New Zealand that was so generally condemned and written down by so-called authorities, while the late bullion returns from the principal mines speak for themselves. Right here we have a capital illustration of the fact that opinions on the future of an undeveloped goldfield are simply valueless, because we are now beginning to learn that there is no recognised law either as to the general character of gold- and silver-bearing lodes, or to the distribution of their coveted product. An expert may, with some degree of certainty, proclaim a future for that portion of a mine disclosed to view in the workings; but no man, no matter what his experience may have been elsewhere, is justified in expressing an opinion on things that do not come within the scope of his vision, and of which he must, as a natural sequence, be entirely ignorant. Prior to actual development, there is no law, written or unwritten, enabling a man to determine either the extent or value of an auriferous deposit. Reefs may run east and west, or north and south, or they may strike through the intermediate points of the compass, and yet be very rich or absolutely barren, as the case may be. The payable ore may be confined to a "rib" on either of the walls, or it may be scattered through the lode, or it may be "bunchy," or occur in "shoots," but all this can only be ascertained as ordinary mining operations are advanced in the mine. There are reefs in some places where the presence of what is termed "good mineral indications" means fortune, and then, again, there are similar looking reefs in other places where such indications mean failure. There are well-defined lodes with a westerly underlie, and equally well-defined ones having an easterly underlie. Some men believe in the former, while others swear by the latter, but, in my opinion, it is very difficult to tell which is the better underlie without examining the banking account of the company under whose supervision the work of development is being carried out. Mining men generally have a strong liking for reefs streaked with sulphides, but I never yet saw the man who could distinguish the difference between "sulphide of iron," which has no commercial value, and "sulphide of silver," which is capable of being converted into current coin of the realm, without invoking the aid of an assayer. A "splendid class of country" is often hailed as the advance agent of rich gold deposits, but I have seen thousands of feet of tunnelling done along the line of likely-looking lodes traversing such country, and “nary a colour of gold” discovered therein. On the other hand, I have seen reefs running through country which was not considered favourable to the existence of the precious metals carrying rich deposits of gold and silver—much to the surprise of those who are fond of drawing comparisons and theorising on this subject. The old doctrine of reasoning by analogy in gold- and silver-mining is played out, and most of our intelligent miners are fully alive to the fact. Theorists, who can see fathoms deep into the bowels of mother earth, and who can outline the future of a mine, or a group of mines, development or no development, are now only believed in by persons belonging to the same order as themselves, and it requires no occult reasoning powers to foreshadow their future. In this mundane sphere we have no students educated in “Dame Nature’s laboratory,” consequently no one is cognisant of the work carried on therein, and, when one is once in a a proved gold- and silver-bearing territory, the only correct theory as to whether the deposits of those metals will be light or heavy is that enunciated by the “old digger,” who says,

“Where it is, there it be.”

According to the report of the Queensland Royal Commission, “the one especial feature noticeable in the management of the Gympie mines is the good ventilation, which has been brought about in many cases by the use of the water-jet. In one mine which we visited the air was forced through tubes 1,500 ft. in length by means of a small fan driven by a water-jet, the mine when visited being cool and well ventilated.” Gympie is situated 110 miles north of Brisbane. It is one of the oldest goldfields in Queensland and has produced upwards of 2,000,000 oz. of gold. There are now only about 1,100 miners on the field, yet the total population is upwards of 12,000, who are mainly dependent upon the mining industry for their means of livelihood.

The *Engineering and Mining Journal* says: “The attempt to reorganize tin-mining in Cornwall on a modern basis, which was begun successfully by the Dolcoath Company, has been checked in the case of two or three others by the action of the ‘lords’ or owners of the realty. They have either demanded excessive royalties or have imposed conditions which could not be carried out at a reasonable cost, nor without disturbing the plans for improving and modernizing the mines. It looks very much as if the Dolcoath would remain the solitary case of a Cornish mine successfully managed under present conditions.”

WAGES DISPUTE IN THE INANGAHUA DISTRICT.

In May last the Inangahua Miners’ Union submitted a “scale of wages, hours of labour, and other clauses at present appertaining to mining in this district,” to the representatives of the Consolidated Goldfields of New Zealand, Progress Mines of New Zealand, Inkerman Combined Gold Mines, Keep-it-Dark, Big River, and Welcome Gold-mining Companies, asking them to meet the union, “with a view of entering into an industrial agreement in accordance with the provisions of the Industrial Conciliation and Arbitration Act, 1894–95.” As no agreement was arrived at, the matters in dispute were referred to the Conciliation Board, as follows:—

1. Shift-bosses, 11s. 8d. per shift.
2. Timbermen, 11s. 8d. per shift.
3. Rise, winze, and shaft, 11s. per shift.
4. Miners, 10s. per shift.
5. Truckers, £2 10s. per week.
6. Battery-feeders, £2 10s. per week.
7. Men working in bad air or wet ground: six hours to be a shift.
8. Pick-and-shovel labour, 10s. per day.
9. Bushmen, 12s. per day.
10. Men in charge of shifts at batteries, £4 per week
11. Blanket-washers, £3 10s. per week.
12. Men working rock-drills, 11s. 8d. per shift.
13. Engine-drivers and wheelmen, £3 10s. per week.
14. Blacksmiths, £4 per week.
15. Bracemen, £3 10s. per week.
16. Chambermen, £3 10s. per week.
17. That the working hours of miners be forty-six from surface to surface per week.
18. That, where the main shaft exceeds in depth 250 ft., the company shall at all times lift the men, and keep a man on the brace while men are working below.
19. That all contracts under 100 ft. for driving, sinking, or rising be abolished, and that no contract be let for breaking out quartz.
20. That two delegates, appointed by this association, be allowed to inspect the mines when instructed by the society.
21. That the company give the Christmas holidays from Christmas Eve to New Year’s Day, both inclusive, also Good Friday, Easter Monday and Tuesday, Queen’s Birthday, and the union anniversary.
22. That the company give one week’s notice when discharging any one of their employés, the employés to give a similar notice when desiring to leave the company.
23. That no work shall be done on Sunday or the holidays mentioned except that which is of absolute necessity, and the pay for such days shall be double the ordinary rates.
24. That in all cases members of this union to have preference of work.

The Conciliation Board made the following award:—

1. Shift-bosses’ wages as at present, 11s. 8d., but suggests that they should not be members of the union.
2. Timbermen as at present, 11s. 8d.

3. Rise, winze, and shaft wages, 10s.
4. Miners' wages, 9s. 6d.
5. Truckers, as at present, 8s.
6. Feeders, as at present, 8s.
7. Struck out.
8. Pick-and shovel-labor, 8s. 6d.
9. Bushmen, 9s. 6d.
10. Men in charge of shift at batteries, 10s.
11. Blanket-washers, 8s.
12. Men working rock-drills, 10s.
13. Engine-drivers and wheelmen, stationary, £3; with winders' certificates, £3 10s. per week.
14. Blacksmiths, 11s. 8d. to 13s. 4d.
15 and 16. Brace and chambermen, 9s. per day.
17. Saturday afternoon-shift to leave the mine at 11 p.m.; Sunday night-shift to go on at 1 a.m.
18. Struck out.
19. Where tenders are called for contracts, written specifications shall be provided to work by.
20. The Board will recommend to the Government the advisability of an appointment of an inspector for gold-mines only.
21. The Easter holidays are done away with, Christmas holidays to commence on Christmas Eve and end on New Year's Day, both days inclusive, and that Queen's Birthday and Labour Day be holidays.
22. Struck out.
23. That necessary works only be performed on Sunday. The extra pay in this clause was struck out.
24. Residents of the district, if competent, to have preference of employment.

The award in McKay's case is: Pick-and-shovel men, 8s. 6d.; bushmen, 9s.; blacksmiths, 11s. 8d. to 13s. 4d.

[Mr. McKay is contractor for construction of water-race for Progress Mines Company.]

From this award the union appealed, and on the 30th September, at the Arbitration Court in Reefton, Mr. Justice Williams made the final award:—

This Court has carefully considered the evidence before it, but as the recommendation of the Conciliation Board was unanimously agreed on, great weight must be given to this recommendation by the Court, and it is adopted to a great extent, though not entirely:—

1. Shift-bosses, 11s. 8d.
2. Timbermen, 11s. 8d.
3. Rise, winze, and shaft, 10s.
4. Miners: This Court would like to see a scale of wages adopted similar to that in some parts of Otago, with a maximum of 10s. per shift, but does not see its way to frame such a scale, and consequently settles the average wage per shift at 9s. 6d. This Court would also like to see provision made for beginners, but it has not sufficient knowledge to make any award in connection therewith, but recommends the union making an agreement of this kind with the several companies.
5. Truckers, 8s.
6. Battery-feeders, 8s.
7. Men working in bad air, or in wet ground, six hours to constitute a shift: No award. If inspection of the mines is sufficient, as it ought to be, there should be no working in bad air. Wet ground is rare.
8. Pick-and-shovel men, 8s. 6d.; ordinary surface labour about mines, 8s.
9. Bushmen: No award. Companies do not employ this class of labour; only employed by contractors to companies.
10. Men in charge of shifts at batteries, 10s.
11. Blanket-washers: No award. No persons employed solely in this capacity by the companies.
12. Men working rock-drills, 10s.
13. Engine-drivers and wheelmen, 11s. 8d.
14. Blacksmiths, 11s. 8d. to 13s. 4d.
15. Bracemen, 9s.
16. Chambermen: No award. Truckers sometimes act as chambermen.
17. Working hours: Night-shift goes on 1 a.m. Monday morning, ceases work 8 a.m. Day-shift, Saturday, goes on 8 a.m., ceases work 2 p.m. Afternoon-shift, Saturday, goes on 2 p.m., ceases work 8 p.m. Saturday evening.
18. That when the main shaft exceeds 250 ft. in depth, and where there is machinery, the company shall at all times lift the men.
19. Where tenders for work are called for, written specifications shall be provided to work by.
20. No award.
21. The Christmas holidays shall commence on Christmas Eve, and end on New Year's Day, both inclusive. The Queen's Birthday and Labour Day shall also be holidays.
22. Withdrawn.
23. That no work shall be done on Sunday, or during any of the holidays above-mentioned, except that which is of absolute necessity.
24. Each company in employing labour shall not discriminate against members of the union, and shall not either directly or indirectly do anything with a view to injure the union. Members of the union shall work in harmony with non-union men.

The award shall come into force on this date, and shall be binding upon the union and its members, and upon the several companies above-mentioned, and its provisions may be enforced for the period of two years from this date.

A duplicate of the award shall be filed in the Supreme Court Office at Hokitika.

The rate of wages to be paid by Andrew McKay to pick-and-shovel men employed by him shall be 8s. 6d. per day.

Blacksmiths, 11s. 8d. to 13s. 4d. per day.

The award to come into force on this date, to be binding on the union and its members, and upon Andrew McKay, and the provisions of the award may be enforced for the period of two years from this date; a duplicate of the award to be filed in the Supreme Court Office at Hokitika.

An offer has been made by the Department to the Totara Miners' Association, to assist Joe Allen and Son in sinking a prospecting shaft 100 ft. in the alluvial terraces between Duffer's Creek and Lake Ianthe. The association, in making the recommendation for assistance, stated that they "believe a large auriferous alluvial deposit exists, which may be discovered by energetic prospecting, and thus give employment to a great number of miners."

THE CYANIDE PROCESS OF GOLD EXTRACTION.

(From the *Engineer.*)

MILLIONS of ounces of gold have been recovered from material that previously had to be regarded as waste by the introduction of the cyanide process into the Transvaal; the same process has, however, been applied with more or less success in various other parts of the world. The process is one, therefore, of considerable significance, and, although the engineering of it is by no means of an intricate nature, we consider the matter of sufficient interest to set before our readers.

To start with, it is well to remember that the cyanide process is not suited to all ores, or, at any rate, cannot be applied in the same manner to all ores. The suitability of an ore for such treatment should be made the subject of experiment before deciding on or adopting either this or any other process.

In the simple cyanide process finely-pulverised ore is submitted to the action of a dilute solution of potassium-cyanide. After a period of contact, the duration of which varies according to circumstances, the solution is drawn off from the ore mass and passed over metallic zinc. With a view to economy and expediency, direct electrolysis has been introduced by some to replace the zinc. But in this simple form the range of utility of the cyanide process is limited to a comparatively small selection from the many different kinds of ores in which gold occurs; consequently, in some cases a more elaborate preliminary treatment than the simple pulverisation referred to above is required, and in other cases an agent has to be added to the cyanide to intensify and expedite its action; such may then be regarded as modifications of the cyanide process. To Messrs. McArthur and Forrest is due the whole credit of putting the dissolving of gold from its ores by means of cyanide of potassium upon a practical basis, and to the company who supported them is due the credit of proving the correctness of the plans of Messrs. McArthur and Forrest on a scale commensurate with the importance of the subject. The principles upon which the process is based, it is true, are old, and had already been applied in a small way for various small purposes; and, although it had been contemplated to apply them to gold in ores, it had never been properly put to the test, as one might obviously gather from the fact that large quantities of gold amenable to cyanide treatment were simply being cast on the waste heaps until the McArthur-Forrest cyanide process came to the rescue.

The simple cyanide process is based on the following chemical principles: Firstly, that of the solution of the gold in the potassium-cyanide; secondly and subsequently, the replacement of the gold by zinc. Expressed chemically, these are represented in the following manner:—

$$\underset{\text{Gold.}}{Au_2} + \underset{\text{Potassium-cyanide.}}{4\,KCy} + \underset{\text{Water.}}{H_2O} + \underset{\text{Oxygen.}}{O} = \underset{\text{Potassium-aurocyanide.}}{2\,KAu\,Cy_2} + \underset{\text{Potash.}}{2\,KH\,O}$$

and

$$\underset{\text{Potassium-aurocyanide.}}{2\,KAuCy_2} + \underset{\text{Zinc.}}{Zn} = \underset{\text{Potassium-zinc cyanide.}}{K_2ZnCy_4} + \underset{\text{Gold.}}{Au_2}$$

The first of these chemical expressions signifies that the solution of gold in potassium-cyanide is the result of distinct chemical action, by which, from gold, potassium-cyanide, water, and oxygen, potash and a double cyanide of potassium and gold are formed, both of which are soluble in water. Furthermore, it shows the minimum quantities that these materials must be present in to bring about the desired change. Taking them in the order given above, and giving parts by weight, we find that $393\frac{7}{10}$ parts of gold require to be in intimate contact—for without that chemical action cannot take place—with 260 parts of potassium-cyanide, 18 parts of water, and 16 parts of oxygen to produce $575\frac{7}{10}$ parts of potassium-aurocyanide and 112 parts of potash. Or putting it more simply, and in round numbers, to dissolve 100 parts of gold at least 65 parts of potassium-cyanide, $4\frac{1}{4}$ parts of water, 4 parts of oxygen are required. The last number may look comparatively insignificant, but it by no means is, for to dissolve 1 oz. of gold at this rate it would require some 20 grains of oxygen, or about 59 cubic feet of that gas, or 295 cubic feet of atmospheric air. Now, for the supply of oxygen the process manager generally depends on that in the water, which in winter may hold about 4 volumes per 100 volumes; but this number is already reduced to 2 volumes per 100 when a temperature of 68 is reached, and falls still lower as the temperature rises. This small quantity of oxygen in practice—as a matter of fact, a very much larger quantity is actually required—may therefore not always be present in the water used, and unless care is taken to insure its presence no successful extraction of gold can attend the application of the simple cyanide process; for all the agents must be present, all must be present in sufficient strength, and therefore, as in the case of oxygen, both water and potassium-cyanide must be used in excess of the theoretical quantities; but excess of one agent can on no account make up for the deficiency of another. Water and cyanide are generally employed in ample quantity, the oxygen being the agent that is more or less neglected. To avoid this as far as possible the water used for the cyanide solution should be as well aërated—with air, not carbonic acid, the usual principle of aërated waters—as possible, and the solution should be made as dilute as is found expedient, since the capacity of water for oxygen decreases directly in proportion to the amount of cyanide present. So much for the chemistry of the solution of gold in potassium-cyanide. Turning now to the recovery of the gold from the solution of potassium-aurocyanide, this is simply effected by bringing this compound in contact with a substance for which the cyanide portion of the compound has a greater affinity than it has for gold, and such a substance is zinc. The result of the contact is that the gold is rejected in favour of the zinc. Considering the equation numerically, $575\frac{7}{10}$ parts by weight of potassium-aurocyanide require 65 parts by weight of zinc to satisfy requirements, producing 247 parts by weight of potassium zinc-cyanide with the liberation of $393\frac{7}{10}$ parts by weight of gold, or, speaking in ounces, 1 oz. of zinc is required to replace 6 oz. of gold; in practice a very much larger quantity is required.

The principal reason for the fact that in almost all cases we have mentioned the quantities in practice are much in excess of those theoretically indicated is that the theoretical information is restricted, for reasons of clearness and convenience, to the object held in view, and therefore supposes the particular change, or changes, going on entirely by itself, or themselves, as the case may be, whereas, as a matter of fact, various concurrent operations actually go on that are undesirable and

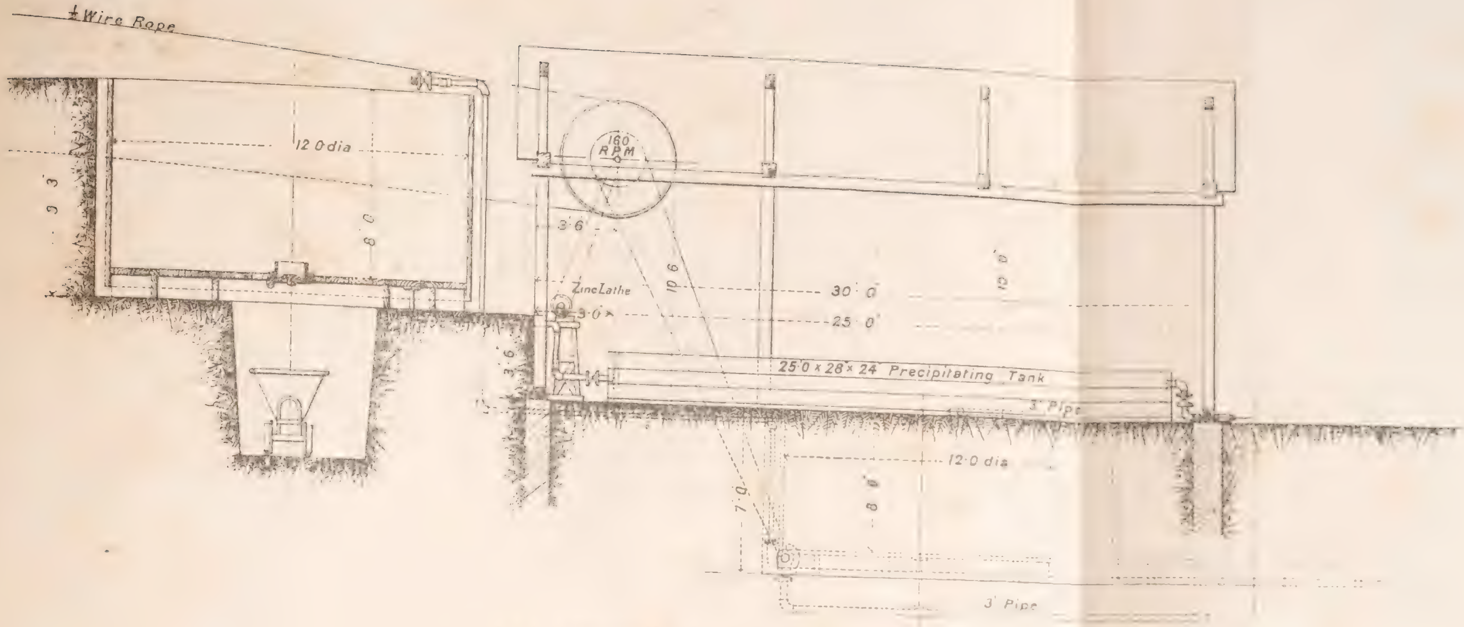
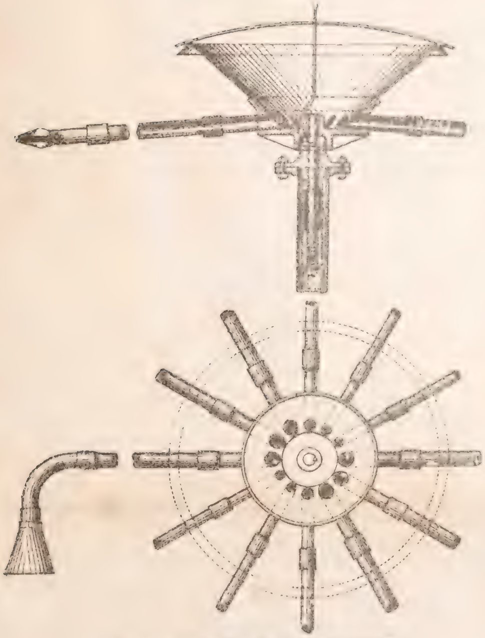
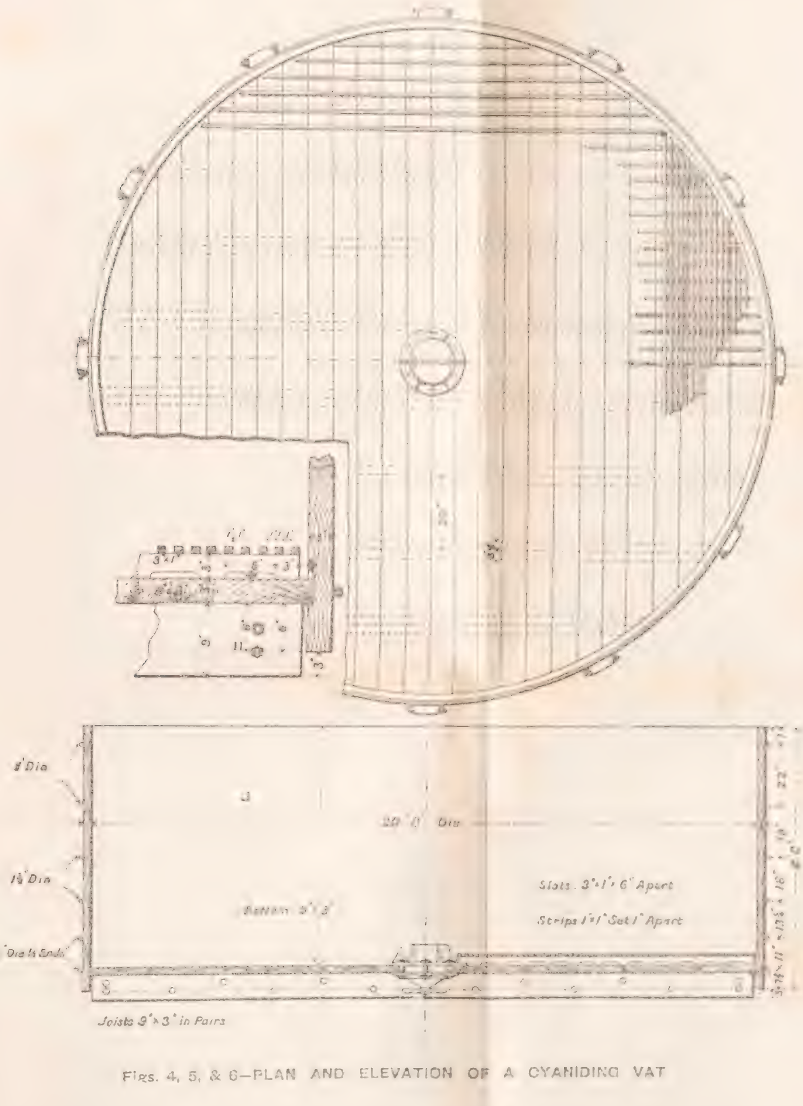


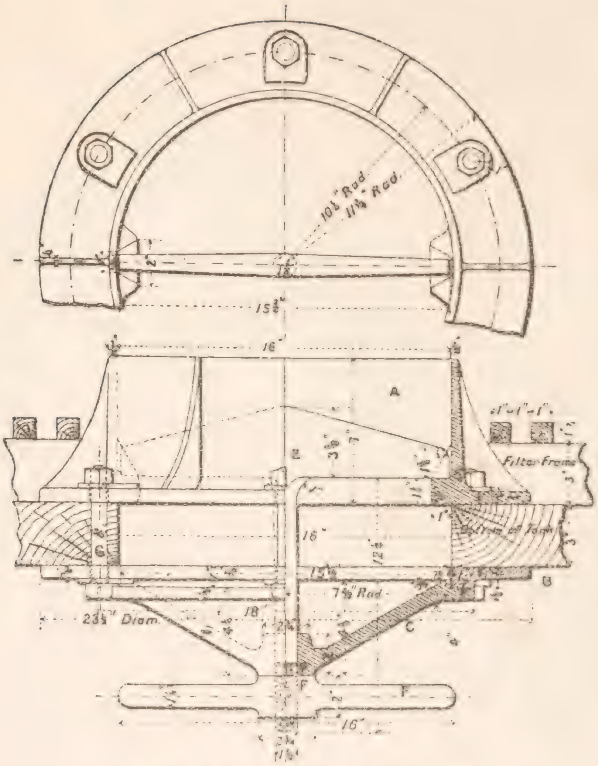
Fig. 3—SECTIONAL ELEVATION OF A CYANIDE PLANT



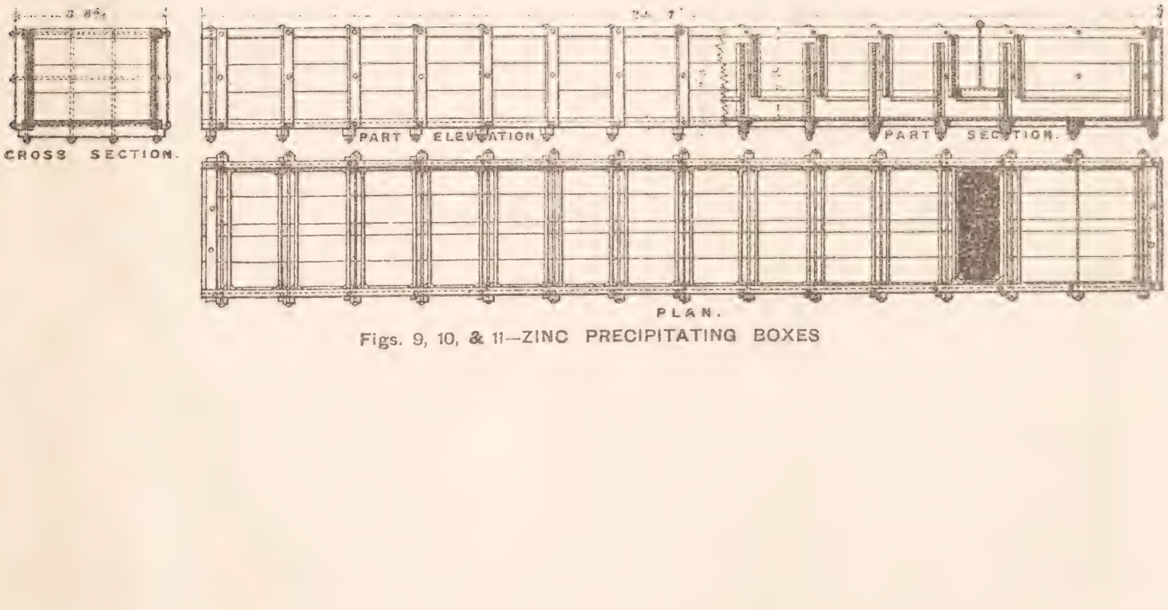
Figs. 1 & 2—PULP DISTRIBUTOR



Figs. 4, 5, & 6—PLAN AND ELEVATION OF A CYANIDING VAT



Figs. 7 & 8—DISCHARGING DOOR



Figs. 9, 10, & 11—ZINC PRECIPITATING BOXES

unavoidable, as well as numerous, each perhaps making a more or less urgent call on a particular agent, which must therefore be present in sufficient quantity to satisfy this demand of unknown magnitude, as well as to satisfy the theoretical requirement.

In practice the cyanide process generally comes in subsequent to the treatment of the ore by amalgamation; it any way is only suited for the removal of very fine and free gold; therefore the ore, if not sufficiently porous, must, under all circumstances, be finely pulverised. Moreover, the finely-pulverised ore must be in such a condition that when spread in considerable thicknesses it will be permeable. As a rule, in course of pulverising a wet mixture of particles of very variable sizes, known as pulp, is obtained, of which the coarser constitute the sand, the finer the slimes. The latter would prevent percolation, as they would obstruct all interstitial spaces. So, before any attempt at cyaniding is made, they must be separated; this may be done by any of the well-known methods, such as hydraulic classifiers or buddles of the old Cornish type. A special modification of the latter has been devised by Mr. Charles Butters and Captain Mein to suit the requirements in South Africa at those mines where the sand is first separated and collected in a special vat, and afterwards transferred to the cyaniding vat, for which practice particular advantages are claimed, which are well worth considering where labour is cheap and there is not much to fear from oxidation. Instead of the ordinary buddling-pit, Messrs. Butters and Mein employ wooden vats fitted with filters and bottom discharge doors, whilst to catch the overflow that takes place all round the periphery a trough is fixed round the top, which delivers into launders leading to slime-pits. It is essential that the pulp should be delivered regularly and spread evenly in the vat to insure washing away all slime, but no fine sand; this they effect by means of a distributor, which, as Mr. Butters states, consists of a central casting, carrying a conical receiving-hopper and a number of radial pipes keyed on to a vertical spindle, which bears on a slightly convex steel pin in the bottom of a second casting bored to fit the spindle, and supported on a column in the centre of the vat. Coarse wire-screening is fixed over the hopper to keep stones and rubbish from entering the pipes. The latter are of different lengths, each terminating with a lateral bend of a quarter of a circle and a flattened nozzle, with a result that the apparatus revolves automatically and distributes the pulp in concentric bands; 1½ in. pipes are used, and they are given a fall of 1 in 12; the diameter of the hopper at the top is 2½ ft.—Figs. 1 and 2. The vat should be sufficiently large to deal with the produce of the pulverising-mill in the desired manner, and this is effected by having the diameter of the vats 20 ft. for twenty-five stamps, 24 ft. for fifty stamps, and 32 ft. for one hundred stamps.

In Fig. 3 is shown in section a typical cyanide plant. The first tank on the left is for the cyanide treatment and leaching, and into which the sand from the collecting-vat in the so-called "intermediate" filling is charged by hand, or the sand from the hydraulic classifier in the "direct" filling is fed through a hose, which is guided by hand, so as to distribute the sand as evenly as possible. Of course, the Butters and Mein distributor is also available for this purpose; it is very important that the sands should be spread as evenly and as lightly as possible in the vat, so as to insure good extraction and efficient percolation. In the case of the direct-filling process, the discharge from the hydraulic classifier is sometimes allowed to settle in a large vat, in which the overflow is adjusted; and in this vat the sand undergoes a short preliminary treatment, after which it is dumped into another tank to receive further treatment. The construction of the vats is a matter of considerable significance; all sorts of materials have been employed. Lately we learn that thin steel tanks have some vogue, especially in dry climates, where wood is liable to shrink and cause leaks; but as wood will generally hold its own for some time we shall draw attention more particularly to vats constructed of that material. Figs. 4, 5, 6, 7, and 8 set forth the details of this kind of vat.

With regard to the capacity, sufficient space must be allowed in each vat to take the whole daily production of sand. The space required will vary somewhat with the character of the ore; but, the weight of a cubic foot being known or ascertained, the space required for holding any number of tons is readily calculated, and this has to be added to the filtering-space required below and the space needed for the solution above. The vats may be of any shape, but circular vats are the most convenient and general, and must be sufficient in number to insure continuous treatment of the mine output. The one illustrated in Figs. 4, 5, and 6 is a typical vat 20 ft. in diameter, made of well-seasoned hard wood free from knots. The staves are 4½ in. wide, 3 in. thick, and 8 ft. long, allowance being made for the gain in which the bottom rests and for the rim below. They are shaped accurately to the curve of the circumference, and the edges planed perfectly true to the radius of the circle, allowing just a slight feather-edge inside to allow for the swelling of the layer that comes in contact with the liquids. The bottoms of 9 in. by 3 in. planks by preference are fully planed, so as to fit perfectly by themselves, but otherwise dowelled or else grooved ⅜ in. by ½ in. for 1 in. by ⅜ in. tongue, as shown—Figs. 5 and 6; the bottom is supported on 9 in. by 3 in. joints, bolted together by ⅝ in. bolts in pairs, and placed with the centres 30 in. apart. The filter-bottom is constructed by fixing slats, which are 3 in. by 1 in., 6 in. apart, parallel across the planks, leaving 1 in. clear from the staves; and at regular intervals ¾ in. clearance from the bottom for the flow of solution beneath. On the top of the slats strips 1 in. square are nailed 1 in. apart, and on the top of these is placed the filter-cloth, twill, canvas, or cocoanut matting. The staves are hooped by wrought-iron rod in three lengths, or more as convenience dictates, of the right curve for each hoop, and joined together by the casting, as shown in some of the illustrations; the diameter of the rod for the upper hoops is 1 in., the middle hoops 1⅛ in., for the lower hoops 1⅛ in. with 1¼ in. ends. The vats are provided with a door in the side at the bottom, or with a door or doors in the bottom itself.

(To be continued.)

THE survey of the proposed tail-race at Donnelly's Creek, Ross, will be undertaken, and a detailed estimate made of the cost, by an officer of the Mines Department as soon as the consent of one of the land-owners has been obtained to taking it 30 ft. under the surface of his orchard and garden.

SCHOOLS OF MINES.

Thames School of Mines.

THIS important institution is situated in the centre of the Thames District, in close proximity to the mines, which afford facilities of practical illustration possessed by few other mining schools in the world. The school is largely attended by practical miners and battery men, who qualify for the Government examinations, eleven candidates having been successful in passing as mining-managers and battery-superintendents at last examination. The course of study, under the directorship of Mr. F. B. Allen, is so arranged that the practical side of each subject is brought prominently forward. In this way students obtain a rapid insight into all the operations of the mine and battery, and assisted by their own practical experience, are able, in many instances, to take control of works on the completion of their course of study. Field practice in surveying, laboratory work in chemistry, assaying, and metallurgy are specially provided for, and the institution is equipped with an experimental metallurgical plant, consisting of furnace, stamps, &c., amalgamating pan, settler, agitator, berdan, and cyanide plant complete. Not only does this plant afford opportunities to the students of obtaining a knowledge of the treatment necessary for the very varied ores of the Cape Colville Peninsula, but it has been the means of giving useful information to many companies as to the most satisfactory mode of treatment of their ores. During the last twelve months the attendance at the school has increased twofold, reaching 160 at the present time. Over 1,200 assays have been performed for the public, and the plant, in treating over 70-ton parcels experimentally for the public, has been exceptionally busy. It is now contemplated to make extensive additions to the machinery. Already 1,400 ft. of pipes are on the ground for the new 9 in. main, and Mr. Lawrie's tender at £96 has been accepted for the work of laying them. With the extra water-supply thus obtainable, more machinery can be run, and will be erected as soon as circumstances allow.

Mr. W. A. McLeod, B.Sc., has been appointed assistant lecturer at the Thames School of Mines, and took up his duties at the beginning of August. Having been through a thorough mining and metallurgical course, supplemented by experience in the mine and battery, he should prove a valuable help to Mr. F. B. Allen, the director, at a time when the institution is so busy and so full of work.

Reefton School of Mines.

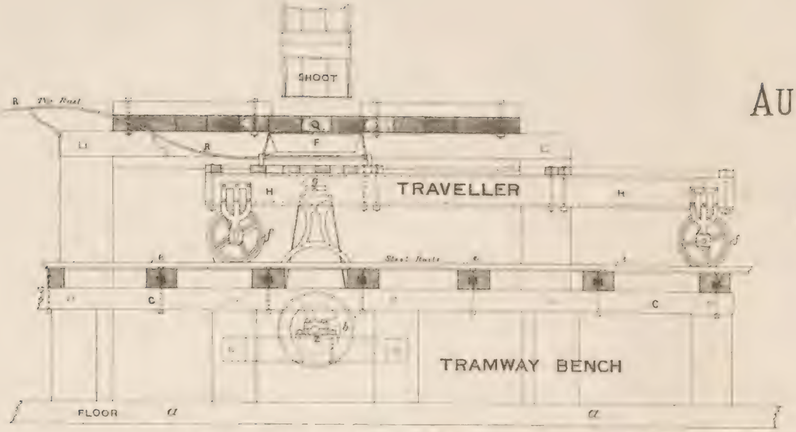
This institution was established in the year 1886 in the town of Reefton, which is about the centre of the mining district of Inangahua. It is the only School of Mines on the west coast of the Middle Island, where so much mining is being carried on, and has therefore been very largely used by miners and others for the testing and assaying of the various minerals found. It is now freely admitted by all to be a most valuable institution, where accurate and reliable tests may be obtained. The school is governed by a committee of seven elected annually by the members, while the classes and assaying are under the directorship of Mr. R. M. Aitken. Classes are held for the following subjects: Mining, mathematics, surveying, assaying, metallurgy, geology, practical and theoretical chemistry. The laboratory is fairly-well equipped with the necessary material for assaying and testing; and small parcels of ore can be treated by amalgamation, chlorine, or cyanide. A great many of the students have been successfully prepared for first-class mine-managers and engine-drivers, and others have received good appointments owing to their knowledge of assaying, metallurgy, and surveying. There is no experimental plant in connection with the school, the want of which, in such an important mining district, is very much felt, and would, no doubt, be largely used.

Waihi Assisted School.

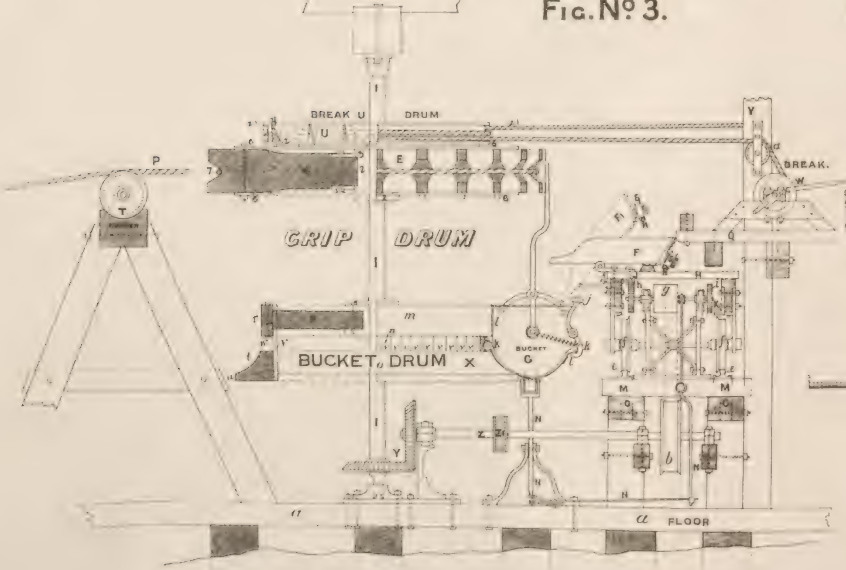
Since the opening of the Waihi school, on the 1st July, sixty students have been enrolled, mining, mathematics, chemistry, and assaying being the classes most largely attended. The school is throughout modelled and worked on the lines of the Thames School of Mines. All the classes are held in the evening, but supplementary lectures are delivered in the morning for the benefit of those engaged on night-shift. It is intended to have three terms in each year, and the fees are fixed at 5s. per class for each term, 7s. 6d. being charged for mining, assaying, and practical chemistry. The building, which is 40 ft. by 20 ft., contains lecture-, assay-, and balance-rooms, but already the accommodation in the assay-room has been found too small for the number of students. Orders have been forwarded by the council for a good supply of chemicals and apparatus, and as the Waihi community appear to be thoroughly determined to go on with the work in connection with their School of Mines, the result of their efforts will be watched with interest. From the 28th August, 1896, to the 31st March, 1897, the donations amounted to £169 16s. 6d., and in

PLAN
OF
AUTOMATIC LOADING STAGE
FOR
AERIAL TRAMWAYS.

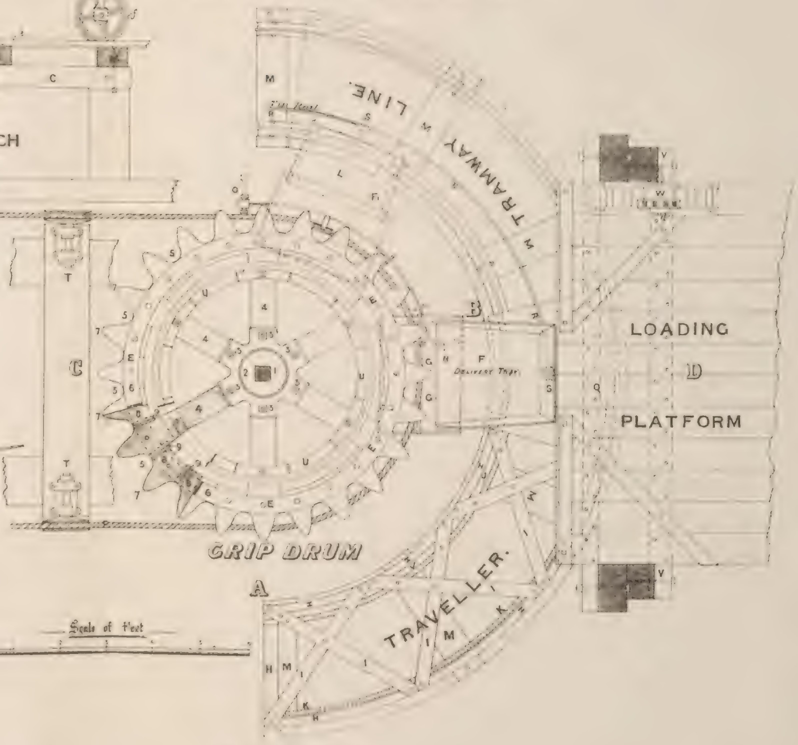
DESIGNED BY G. B. BEERE, C.E.



FRONT ELEVATION A. B.
OUT OF CURVE.
FIG. Nº 3.



SECTION AND ELEVATION
C. D.
FIG Nº 2.



Scale of Feet

PLAN
FIG Nº 1.

addition a grant of £33 6s. 8d. was voted by the Ohinemuri County Council. The assistant in charge of the school is Mr. P. G. Morgan.

Kuaotunu Assisted School.

This school is regularly attended by about a dozen students, who take great interest in the work, but find themselves considerably handicapped owing to the want of suitable instruction and the absence of proper equipment. The building is in good order, but is of small dimensions, and the stock and material is rather limited. During a recent visit of inspection, the Director of the Thames School of Mines was informed that, in the event of an instructor being appointed for Coromandel and Kuaotunu, a class of thirty students could be found at the latter place.

NEW INVENTIONS.

THE following short descriptions of the "Automatic Loading Platform" and the "Skeleton Drum," illustrations of which are given in this issue, have been furnished by the inventor, Mr Gerald Butler Beere, C.E., of Auckland :—

Automatic Loading Platform.

The object of the above invention, to be attached to an aërial tramway, is to lessen the cost of and improve the system for loading buckets attached to an endless cable used with such tramway. The automatic loading platform consists of a traveller a little over a quadrant of a circle, which runs on a tramway line of half a circle laid down on a bench. At the forward end of the traveller there is a sub-platform to which a delivery tray is hinged, the hinges being about in line with its centre of equilibrium when at rest for being loaded. Immediately abutting on to and somewhat higher than the sub-platform is a larger stationary platform with an upper decking on which the material to be placed in the delivery-tray is deposited. If necessary, a shoot can be arranged so as to automatically fill the tray, but hand labour is considered more suitable for the style of ore met with on the northern fields. The buckets, which are bolted to the endless cable when empty, travel along the line P until the cable touches the grip-drum E. This drum has another drum at a convenient distance beneath it called a bucket-drum X, which travels with the bucket, preventing it from jolting while it is being loaded from the tray. As the bucket comes opposite the tray, the traveller H, which is fitted with a rack immediately beneath the forward part J, connects with a pinion and moves forward, carrying the delivery-tray with it. As the tray moves, a pulley attached to its back and running on a tip-rail R, gradually tilts it until the whole contents are shot into the bucket, which is fully loaded before the tray reaches the end of its journey. As the loaded bucket passes on with the cable it touches a second shunting-gear lever which brings into play the reversing lower back rack, K, and so carries the traveller back, bringing the empty tray back to be again loaded. The tray is supposed to carry between 4 cwt. and 5 cwt., and the speed of the cable can be so graduated, assisted by the placing of the buckets at equitable intervals, that one man can shovel in the ore with sufficient rapidity to fully load the buckets as they come round. The grip-drum E, round which the cable passes, is provided with serrated projections, or teeth, thus enabling it to get a good grip of the cable, preventing any possible slipping and giving freedom to the clip of the bucket suspension rod to pass round without hindrance or inconvenience. The machinery can be set in motion by means of the bevel gear Y and the winch Z1, and once started gravitation enables the loaded buckets, which travel on an incline, to keep the cable going.

The Skeleton Drum.

This invention is designed with a view of lessening the cost of the construction of wire tramways by reason of the low-set trestles, and more particularly to enable quartz, stone, or any material to be carried over a rough and precipitous country, up and down inclines, and around angles and curves, no matter how abrupt, avoiding sagging, and reducing the strain and friction to a minimum. The drum is held in position by top and foot bearings attached to trestle-work or any convenient support. It can be made of any diameter to suit the character of the country, and can be used either vertically or horizontally for curves, angles, or inclines. Its skeleton construction gives it a great advantage over the ordinary old-fashioned drum, not only in lightness and in durability, but, by presenting a smaller surface to the cable, reduces the friction in a great degree. When placed vertically each arm of the drum is provided with a double set of runners to prevent the cable running or being wrenched off. When placed horizontally, the runners are only needed on the lower rim to keep the cable in position.

PUBLICATIONS RECEIVED.

Detailed Plan of Workings, Waihi Gold-mining Company, made up to 26th June, 1897.

"A Geographic Dictionary of New Jersey," by Henry Gannett.

"A Geological Reconnoissance in North-west Wyoming," by George Homans Eldridge.

"The Devonian System of Eastern Pennsylvania and New York," by Charles S. Prosser."

"A Bibliography of North American Palæontology, 1888–92," by Charles Rollin Keyes. From J. W. Powell, Esq., Director United States Geological Survey.

"Results of Primary Triangulation," by Henry Gannett, Chief Topographer. From Hon. J. W. Powell, Director United States Geological Survey.

"Reports and Maps of the Alabama Geological Survey." From Eugene A. Smith, Esq., Ph.D., State Geologist, University of Alabama, U.S.A.

"Report on the Mining Industry of Zululand for the Year 1896." From J. Jervis Garrard, A.M.I.C.E., Acting Commissioner of Mines.

"Annual Reports." From the Mines Department, Tasmania.

"Report of the Royal Commission appointed to Inquire into and Report upon the Laws Relating to Mining for Gold and other Minerals." From the Mines Department, Queensland.

THE QUEENSLAND ROYAL COMMISSION ON MINING.

THE following is a summary of the recommendations made by the Royal Commission appointed to inquire into and report upon the laws relating to mining for gold and other minerals in Queensland, and the best mode in which assistance can be rendered to develop the mineral resources of that colony:—

Leases.

1. That the Minister shall have power to increase the area allowed to be held under lease up to the maximum of 50 acres, except in cases of amalgamated leases, in which the maximum area shall not exceed 100 acres.

2. That the period at which a lessee must comply with the labour conditions be three calendar months from the date of the application for the lease.

3. That the labour conditions shall not be less than one man to 5 acres.

4. That a statutory right to exemption for a period not exceeding six months should be given to a lessee on proving to the satisfaction of the warden that he has expended unprofitably a sum equal to £200 per acre, and making a statutory declaration to that effect, notice stating the period for which it is intended to stop working the mine to be given to the warden whenever the right is to be used.

5. That in cases of urgency the warden shall have power to grant total temporary exemption not exceeding fourteen days, which shall not affect partial exemption should the mine at that time be under partial exemption.

6. That a lessee or applicant for lease shall have the right to resume and cease work at any time or times during any period of exemption without in any way vitiating such exemption.

7. That for the first two breaches of the conditions of a lease the Minister may only fine a lessee, and that for a subsequent breach the Minister may either fine or forfeit.

8. That applicants for forfeiture shall deposit with the warden at the time of making the application the sum of £5. In the case of the application being dismissed with costs, such sum to be devoted to the payment of the costs of the defendant; or, in the case of costs not being awarded, the warden may forfeit it to the general revenue.

9. That the lessee shall have a preferential right to renewal of his lease, on the same terms as those in force with regard to leases at the time the renewal is asked for.

10. That the Minister, on being satisfied that it would be desirable to allow the amalgamation of any leases, may authorise such amalgamation, provided that the labour to be employed on or in connection with such amalgamated leases shall not be less than the sum total of the labour required in each separate lease, and that the total area of the amalgamated lease shall not exceed 100 acres.

11. That Regulation 14, dealing with false representations, be made to apply to leases as well as claims.

Miners' Rights and Mineral Licenses.

12. That mineral licenses be abolished, and that one form of miner's right only be issued, conferring on its holder all the rights which are now conferred by the joint holding of a miner's right or mineral license, subject to the regulations in force on the gold and mineral fields of the colony.

13. That the warden have power to issue permits, giving the same privileges as a miner's right, for a period not exceeding three months, to persons who are unable to pay for miners' rights.

14. That the holder of a miner's right have power to take up a market-garden, and to sublet any claim or holding held under such right.

15. That no miners' rights be issued to minors unless they are made liable to all contracts and torts in connection with property held under such rights as if the holders were of full age.

16. That section 9 of the Goldfields Act of 1874 shall be amended by repealing the words "on a proclaimed goldfield," so as to enable the holder of a miner's right to occupy any Crown lands outside of a proclaimed goldfield.

Mines Regulation Act.

17. That a board of examiners be appointed for the purpose of examining candidates for the position of mining manager.

18. That there shall be two classes of certificates—first-class certificates, that is to say, certificates of competency to be manager; and second-class certificates, that is to say, certificates of competency to be under-manager; but no person shall be entitled to such certificates unless he shall have had practical experience in mines for at least five years.

19. That certificates of service be granted to every person who satisfies the Board either that before the passing of the Act he was exercising or had since that date exercised, or that he had at any time before the passing of the Act exercised for a period of not less than twelve months, functions substantially corresponding with those of a manager or under-manager of a mine.

20. That certificates of service have the same effect as first-class certificates of competency.

21. That it shall not be compulsory for mining managers to hold certificates.

22. That where mining managers and miners' accident associations exist they shall supply a list to the warden giving the addresses or places of employment of their members.

23. That on the occurrence of an accident the warden shall select one person from each list to inspect and report, independent of the inspection by the Inspector of Mines.

24. That no employer shall prevent any person so selected from carrying out the duties imposed on him by these recommendations.

25. That all inquiries into accidents shall be heard by the warden and a jury of four drawn from the existing list of jurors of either Supreme or District Courts, or if no such list of jurors exist, then from the list of assessors made each year by the warden.

26. That the verdict of the jury shall be forwarded to the Attorney-General.

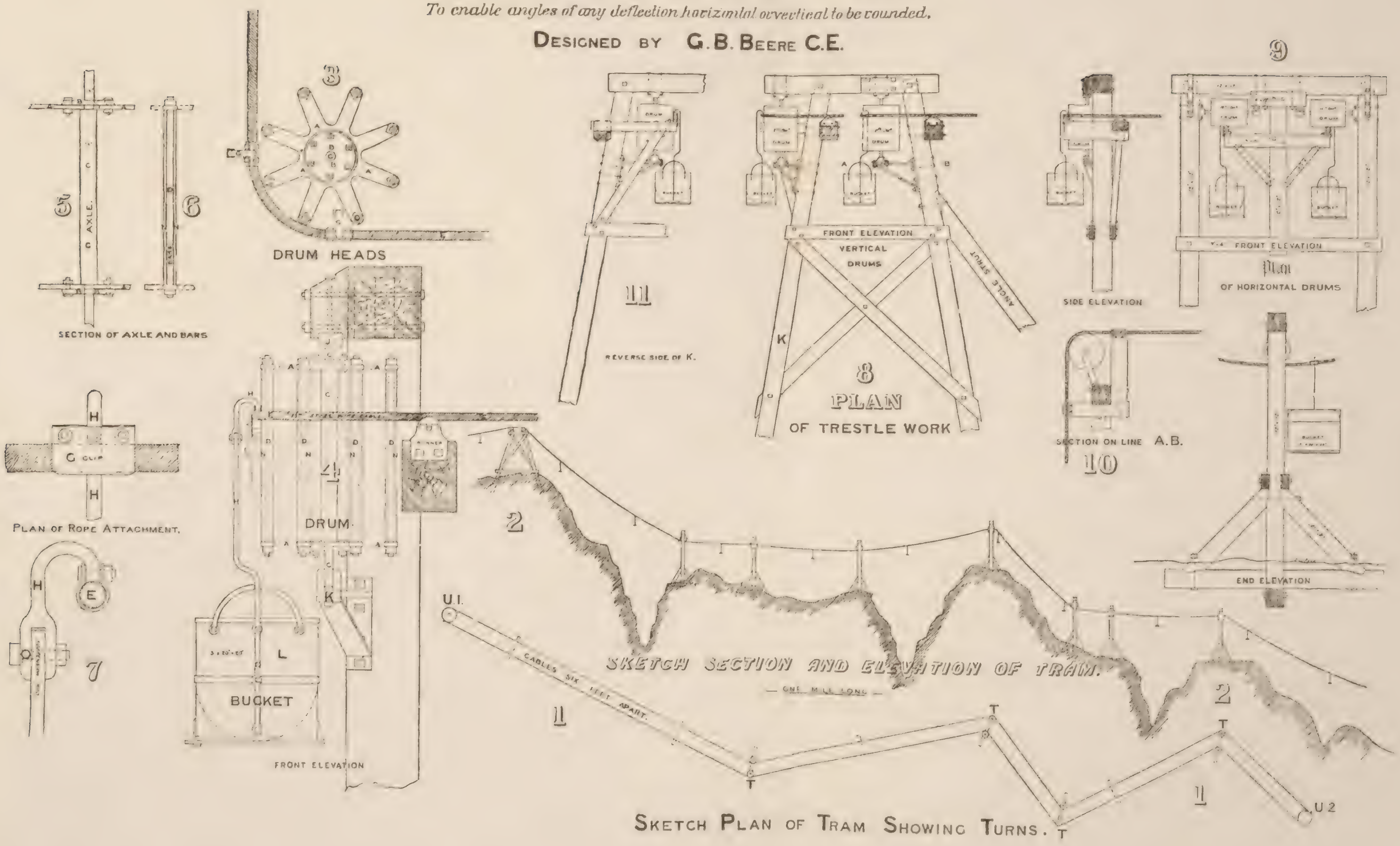
27. That a stricter definition of "adequate ventilation" be passed, and that it be held to mean not less than 100 cubic feet per man per minute.

PLAN.

OF SKELETON DRUM FOR AERIAL TRAMWAYS.

To enable angles of any deflection horizontal or vertical to be rounded.

DESIGNED BY G. B. BEERE C.E.



28. That the right of one mine to connect with another for the purpose of ventilation should be decided by the mining inspector, with a right of appeal to the warden ; or,

29. That a local board be formed to deal with the subject of ventilation in mines.

30. That all nitro-glycerine compounds imported into the colony be subject to the heat exudation test, and that all gelatinous explosives shall, in addition to the tests named, be also submitted to the liquefaction test.

31. That all new explosives, or new brands of explosives imported, be analysed quantitatively and qualitatively, and that it be discretionary with the inspector to apply such analyses to any explosive imported.

32. That it be made compulsory on all importers of new explosives or new brands of explosives to supply the officer in charge of explosives with particulars of the components and proportions thereof in the explosives so imported, together with dates of manufacture of the same.

33. That detonators and fuses be tested.

34. That as it is impossible with the present limited staff of the Government Analyst's Department to exercise a thorough supervision over the importation and testing of explosives, a competent inspector and sub-inspector of explosives be appointed.

35. That the staff of the Government Analyst be increased to enable him to devote sufficient time to the important duties connected with the position of Inspector of Explosives.

36. That in signalling, 1 knock indicate to go on ; 1 knock to stop ; 2 knocks to lower ; 3 knocks to speak ; 4 knocks, men on.

37. That where shafts are divided into two compartments there shall not be less than two knocker lines—one in each compartment.

38. That engine-drivers be in attendance during the whole time any person is below ground.

39. That an adequate brake or other safety appliance, in addition to that on the fly-wheel, shall be fitted to each winding-drum in such a manner that it can be applied by the engine-driver without leaving the starting-handle of the engine, also a sprag block for the purpose of holding the drum when out of gear.

40. That first- and second-class certificates for engine-drivers be granted.

41. That the inspector may grant permits to allow persons to take charge of winding machinery for the purpose of learning.

42. That in case of misconduct of engine-drivers, the matter to be investigated by the examiners, who, in addition to their present power, shall have authority to fine.

43. That only first-class certificated men be allowed to drive winding engines.

44. That every cage used in a mine to be fitted with a safety-hook with suitable attaching appliances fixed to the poppet-heads to prevent it coming in contact with the poppet-heads, and no safety-hook to be used that will not suspend the cage at the poppet-head when detached from the rope.

45. That in addition to other things prohibited by subsection 19 of section 22 of the Mines Regulation Act from being placed in the cage, there be added the word "truck."

46. That wherever cages are employed there shall not be less than 15 ft. in the clear between the brace and the pully-wheel. In all other cases the inspector to have power to regulate the distance.

47. That the cover overhead shall be at least 6 ft. 6 in. above the floor of the cage, and shall be formed of iron not less than $\frac{3}{8}$ in., or steel not less than $\frac{1}{4}$ in. in thickness, and securely hung on hinges and fitted with sloping sides, so as to be readily lifted by persons within the cage.

48. That *automatic self-acting doors* be fixed to the skids or guides below the poppet-heads to prevent the falling of the cage down the shaft when detached by overwinding.

49. That before any rope or chain is used in the shaft of a mine it shall be tested and proved to be equal to carrying twice the weight of the ordinary load, which shall consist of the cage, truck, and contents, and weight of rope from bottom of shaft to pit-head pulley ; the working load not to be more than one-eighth of the breaking strain of the rope, as shown by the certificate received from the manufacturer.

50. That ropes and chains used in lowering and raising men shall be tested at intervals of not less than three months.

51. That in shoeing ropes the cones be not less than 1 ft. in a vertical shaft, and 7 in. in an underlie shaft.

52. That there be added to section 35 of the Mines Regulation Act, after the words "months past," the following, "and a register showing the quarterly progress of the workings, the condition and nature of the strata, together with memoranda of such circumstances as may be useful to note as being of interest to the work of the mine and the safety of the workmen." This to be applicable to all mines.

53. That there be not less than 50 ft. of intervening ground between the two shafts, required by Coal Mining Regulation No. 40.

54. That where at the instance of two-thirds of the men employed in a coal-mine a check weigher is appointed, all the men in the mine shall contribute towards his wages.

* * * * * *

THE COMPANIES ACT (LIMITED LIABILITY).

67. That shareholders' liability be limited to the amount of one call, the maximum amount of the call being stated in the articles.

68. That directors be allowed to make only one call per month.

69. That all calls made in the colony shall become due on the same date, which shall be fixed by statute, notice of call to be published in the *Government Gazette*, and in a newspaper generally circulating in the district where the registered office of the company is situated.

70. That not less than seven days' notice of call be given.

71. That directors be debarred from incurring any responsibility on the companies' account for a greater amount than a sum equal to the amount of the one maximum call allowed by the articles of association, unless authorised to do so by a special resolution of shareholders passed after the registration of the company, or they shall be personally liable to and shall indemnify the company or any shareholder endamaged by their so incurring a greater liability.

72. That in case of the shareholders passing a special resolution authorising the directors to incur a greater liability than one call would cover, the shareholders be

liable for as many calls as would be necessary to pay the extra liability so incurred over and above the one call which they would be liable for if they had not given special authority to the directors.

73. That those clauses of the Act which make shareholders liable for liquidation calls twelve months after they have ceased to be on the registered share list be repealed; or,

74. That the period over which the liability extends be reduced to six months.

75. That clauses 55 to 61, inclusive, of the Tasmanian Mining Companies Act of 1884, limiting the liability of shareholders, be adopted.

76. That clauses 123, 124, and 125 of the Tasmanian Mining Companies Act of 1884, dealing with forfeited shares, be adopted.

The Mining Companies (No Liability) Act.

77. That shareholders have the right of redeeming their shares at any time previous to within twenty-four hours of the sale by auction.

Priority of Miners' Wages.

78. That greater security be given to miners with regard to the payment of their wages.

79. That provisions similar to the proposed Victorian Mining Bill on this subject be adopted.

80. That provisions similar to the Tasmanian Mining Companies (Foreign) Act be adopted.

Companies (Winding-up) Act of 1892.

81. That the recommendations of Mr. John Marsland with reference to the amendment of this Act be adopted.[*]

Reconstruction of Companies.

82. That the words "the whole of the capital of a company is called up and," in section 72 of the Companies Act, be deleted.

Dividend Duty Act.

83. That a reconstructed company shall be credited with its previous expenditure in the same way as if it had not reconstructed.

84. That Mr. John Marsland's recommendations in reference to foreign shareholders, probates, &c., be adopted.[†]

General.

85. That in the first week of every year the warden shall revise his register of claims after calling upon the registered holders to show cause why their claims should not be forfeited.

86. That all cases of whatsoever nature arising out of titles to shares or any matter in connection with gold-mining companies shall be first heard in the warden's Court, the ordinary right of appeal being reserved.

87. That any person having a suit in the warden's Court shall have the right of being represented by agent, who shall have all the rights, liberties, and privileges of a solicitor, but shall not claim fees.

88. That where it is proved to the warden that miners have raised valuable stone which they are unable to get properly treated, the Government shall defray, partially or wholly, the cost of having a sample sent to such works as Aldershot for testing.

89. That all lands comprised in goldfield reserves be placed wholly under the jurisdiction of the Department of Mines.

90. That the necessary main and branch channels be proclaimed to enable sludge, tailings, and waste to escape.

91. That the forms in the schedule to the Act be revised, and, with a view of getting more correct returns of gold, that assayers and bankers be compelled to furnish returns, and that the monthly returns from mills and mine-owners contain a column giving the value per ounce of gold.

92. That gold-buyers be licensed.

93. That scholarships be granted to allow students to attend the Sydney School of Mines; or,

94. That arrangements be made with the management of Mount Morgan, Charters Towers Pyrites Works, or Aldershot to allow of a two or three years' course of training to students.

95. That a Mining on Private Property Bill be introduced.

96. That at the earliest opportunity the Government Hydraulic Engineer, Mr. Henderson, be sent to the Russell River Goldfield, to report upon the hydraulic sluicing there, upon the capabilities of expanding the industry, upon its possibilities, and upon the approximate cost of fully developing the field; also that Mr. Henderson be instructed to visit the Annan River Tin Mines for similar purposes.

97. That the staff of the Government Geologist be increased.

98. That Mr. Jack's suggestions respecting geological surveys and mappings, the supplying of periodical information by mine-owners, and the examination of the Mount Morgan strike of auriferous beaches and black-slate formations be carried out.

99. That a Government bureau of mining information be established at the Agent-General's office in London.

100. That technological museums on a small scale be established in the country districts.

101. That inquiry be made into the state of the opal fields of the colony, and assistance be given in any way that might be possible, and any necessary regulations be at once framed.

102. That a Mining Acts Consolidation Bill be introduced.

103. That the loans in aid of deep sinking be as liberally granted as is compatible with judicious and careful administration of the funds voted for the same.

104. That a Mines Development Bill be introduced.

105. That, wherever it may appear desirable to the Minister, "Machinery Loans" under re-payment conditions, as suggested in this Report (*see* "Machinery Loans"), may be granted to claim-holders on partially-developed goldfields, where miners are hampered in their operations because of the absence of sufficient machinery on the field.

106. That if satisfactory regulations can be made, the licensing of brokers is advisable.

107. That the mining exhibits at the International Exhibition be displayed in London.

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[*] . . . The real solution of the trouble connected with compulsory liquidation is to do away with the tedious procedure and technicalities enforced by the Supreme Court rules and practice. . . . . I would sweep away the greater portion of the costs of compulsory liquidation by placing the liquidator on the same footing, and giving to him the same powers, as a liquidator in a voluntary winding-up.

[†] . . . If this colony had on its statute-book provisions reciprocal to those of the Imperial (Colonial) Probates Act, an English probate could be resealed in Queensland at small cost.

By Authority: John Mackay, Government Printer, Wellington.

The New Zealand Mines Record.

LIST OF AGENTS.

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"	Upton and Co.
Coromandel	T. W. Rhodes.
Thames	R. Burra.
Paeroa	J. Nathan.
Karangahake	N. White.
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Manufacturers of all kinds of High-class Mining Machinery.
FORGED STEEL SHOES AND DIES A SPECIALTY.

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R. R. HUNT, General Manager,
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THE NEW ZEALAND MINES RECORD.

ADVERTISEMENTS in reference to mining machinery, dredges, drills, explosives, pumps, electrical apparatus, or anything connected with mining, will be received at the cale of charges annexed; also professional cards from assayers, ining engineers, surveyors, &c.

Orders for advertisements must be accompanied in all cases by bank draft, postal note, or post-office order, to cover cost of insertion.

Business Notices.	£	s.	d.
Full page, one insertion	4	0	0
Half " "	2	5	0
Quarter page, "	1	5	0
Single column, "	2	5	0

Smaller spaces, 5s. per inch for each insertion.

Notices *re* calls, dividends, &c., 6d. per line for each insertion. Minimum charge, 2s. 6d.

Illustrations allowed, but electrotypes, stereotypes, or process-blocks must be forwarded.

MINING PUBLICATIONS.

THE following works, published under the authority of the Government, are now on sale at the Government Stationery Department, Wellington, and will be transmitted post-free at the published price to any address in the colony, or to any place within a British possession:—

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